



ISO/IEC17025 Accredited Lab.

Report No: FCC/IC 1206058-04  
File reference No: 2012-06-05

Applicant: Shenzhen EasyN Technology Co., Ltd.

Product: IP Camera

Trademark: EasyN

Model No: 137P, 186P, H6-186B, H3-186V, H3-V10D, H3-A1BD,  
F2-M176, F-M166

Test Standards: FCC Part 15 Subpart C, Paragraph 15.247

Test result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4, FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation of electromagnetic compatibility

Approved By

*Jack Chung*

Jack Chung  
Manager

Dated: June 05, 2012

**Results appearing herein relate only to the sample tested**

**The technical reports is issued errors and omissions exempt and is subject to withdrawal at**

**SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD**

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### **Special Statement:**

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAL. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

#### **CNAL-LAB Code: L2292**

The EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

#### **FCC-Registration No.: 899988**

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 899988.

#### **IC- Registration No.: IC5205A-01**

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration IC No.: 5205A-01.

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## Test Report Conclusion

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## 1.0 General Details

### 1.1 Test Lab Details

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD  
Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen,CHINA.  
Telephone: (755) 83448688  
Fax: (755) 83442996  
Site on File with the Federal Communications Commission – United States  
Registration Number: 899988  
For 3m & 10 m OATS  
Site Listed with Industry Canada of Ottawa, Canada  
Registration Number: IC: 5205A-01  
For 3m & 10 m OATS

### 1.2 Applicant Details

Applicant: Shenzhen EasyN Technology Co., Ltd.  
Address: Block 1, Xingfa Industrial Zone, Tiegang, Xixiang, Bao'an, Shenzhen, China  
Telephone: --  
Fax: --

### 1.3 Description of EUT

Product:	IP Camera
Manufacturer:	Shenzhen EasyN Technology Co., Ltd.
Brand Name:	EasyN
Model Number:	137P
Additional Model Number:	186P, H6-186B, H3-186V, H3-V10D, H3-A1BD, F2-M176, F-M166
Power Adapter	Model: HNC050200U; Rating: Input: 100-240V~, 0.35A, 50-60Hz; Output: DC5V, 2A
Type of Modulation	IEEE 802.11b : DSSS (CCK, QPSK, BPSK) IEEE 802.11g/n (HT20) : OFDM(64QAM, 16QAM, QPSK, BPSK)
Frequency range	IEEE 802.11b/g/n (HT20) : 2412-2462MHz
Channel Spacing	IEEE 802.11b/g/n (HT20) : 5MHz
Air Data Rate	IEEE 802.11b : 11, 5.5, 2, 1 Mbps IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 72.2Mbps
Emission Designator	17M3W7D for 802.11g , 12M1D7W for 802.11b, 18M1W7D for 802.11n HT20
Frequency Selection	By software

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Channel Number IEEE 802.11b/g/n (HT20) : 11 Channels  
Antenna: Dipole Antenna with maximum gain 2.0dBi

1.4 Submitted Sample: 2 Sample

1.5 Test Duration  
2012-05-20 to 2012-06-04

1.6 Test Uncertainty  
Conducted Emissions Uncertainty =3.6dB  
Radiated Emissions Uncertainty =4.7dB

1.7 Test Engineer

*Terry Tang*

The sample tested by \_\_\_\_\_

Print Name: Terry Tang

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2.0	Test Equipments				
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	ROHDE&SCHWARZ	ESPI 3	100379	2012-04-21	2013-04-20
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100294	2012-04-21	2013-04-20
TWO Line-V-NETW	ROHDE&SCHWARZ	EZH3-Z5	100253	2012-04-21	2013-04-20
Ultra Broadband ANT	ROHDE&SCHWARZ	HL562	100157	2012-04-21	2013-04-20
ESDV Test Receiver	ROHDE&SCHWARZ	ESDV	100008	2012-04-21	2013-04-20
Impuls-Begrenzer	ROHDE&SCHWARZ	ESH3-Z2	100281	2012-04-21	2013-04-20
System Controller	CT	SC100	-	--	--
Printer	EPSON	PHOTO EX3	CFNH234850	--	--
Computer	IBM	8434	1S8434KCE99BLXL O*	-	-
Loop Antenna	EMCO	6502	00042960	2012-04-21	2013-04-20
ESPI Test Receiver	ROHDE&SCHWARZ	ESI26	838786/013	2012-04-21	2013-04-20
3m OATS	--	--	N/A	2012-04-21	2013-04-20
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170265	2012-04-21	2013-04-20
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-631	2012-04-21	2013-04-20
Power meter	Anritsu	ML2487A	6K00003613	2012-04-21	2013-04-20
Power sensor	Anritsu	MA2491A	32263	2012-04-21	2013-04-20
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2012-04-21	2013-04-20
LISN	AFJ	LS16C	10010947251	2012-04-21	2013-04-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2012-04-21	2013-04-20
9*6*6 Anechoic	--	--	N/A	2012-04-21	2013-04-20
EMI Test Receiver	RS	ESCS30	100139	2012-04-21	2013-04-20
LISN	AFJ	LS16C	10010947251	2012-04-21	2013-04-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2012-04-21	2013-04-20

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2.1 Auxiliary Equipment

Name	Model No.	Serial No.	Manufacturer	Cable	FCC ID/DOC
U-disk	U208	--	Netac	--	FCC DOC
SD	--	--	Kingston	--	--
PC	R400	--	IBM	--	FCC ID
Mouse	M-F105	--	L.SEletron	--	FCC DOC
Earphone	--	--	--	--	--

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### 3. DESCRIPTION OF TEST MODES

#### IEEE 802.11b, 802.11g, 802.11n (HT20) mode

The EUT had been tested under operating condition. There are three channels have been tested as following:

Channel	Frequency (MHz)
Low	2412
Middle	2437
High	2462

IEEE 802.11b mode: 11Mbps data rate (worst case) was chosen for full testing. IEEE 802.11g mode: 54Mbps data rate (worst case) was chosen for full testing. IEEE 802.11n (HT20) mode: 6.5Mbps data rate (worst case) were chosen for full testing

The worst-case data rates are determined according to the description above, based on the investigations by measuring the PSD and average power across all the data rates, bandwidths, modulations and spatial stream modes.

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 2462 MHz.

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### 3.0 Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:			
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

#### 3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

#### 4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co., Ltd

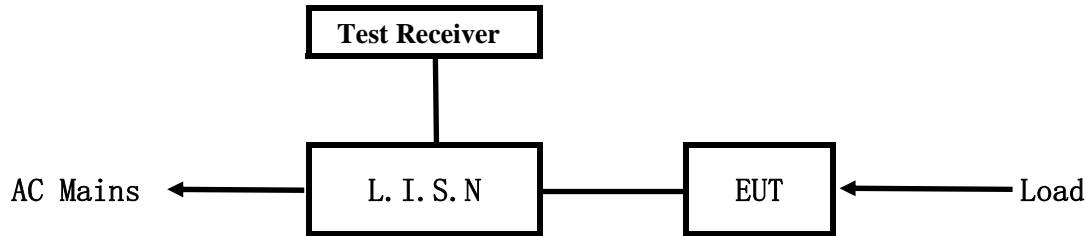
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## 5. Power Line Conducted Emission Test

### 5.1 Schematics of the test



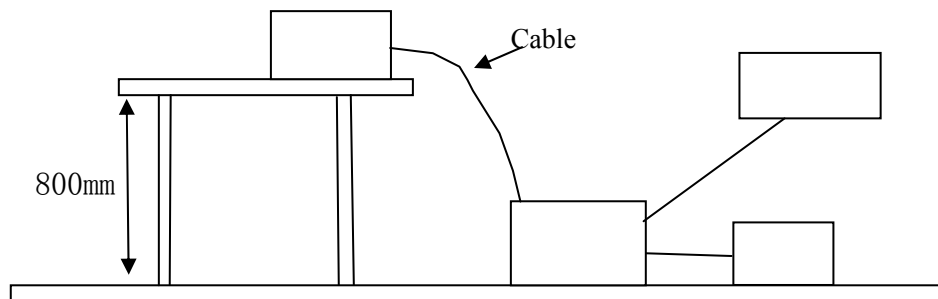
EUT: Equipment Under Test

### 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



### 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

#### A. EUT

Device	Manufacturer	Model	FCC ID/IC
IP Camera	Shenzhen EasyN Technology Co., Ltd.	137P	ZNXEASYN137P

#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

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C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
N/A				

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207 and 15.107 and RSS-210

Frequency (MHz)	Class A Limits (dB $\mu$ V)		Class B Limits (dB $\mu$ V)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ~ 0.50	79.0	66.0	66.0~56.0*	56.0~46.0*
0.50 ~ 5.00	73.0	60.0	56.0	46.0
5.00 ~ 30.00	73.0	60.0	60.0	50.0

- Notes:
1. \*Decreasing linearly with logarithm of frequency.
  2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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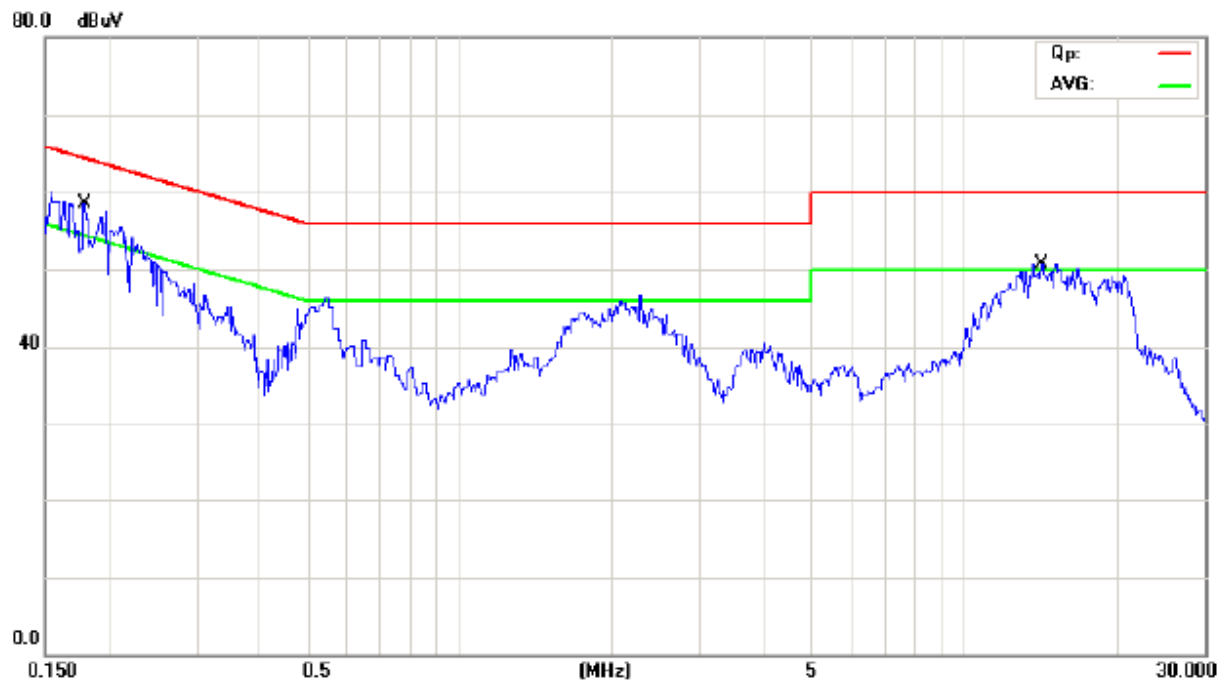


**A Conducted Emission on Line Terminal of the power line (150kHz to 30MHz)**

EUT set Condition: Keep WIFI Transmitting

**Results: Pass**

Please refer to following diagram for individual



Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Line		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.178	56.57	28.57	--	--	64.54	54.54
14.250	50.76	22.76	--	--	60.00	50.00

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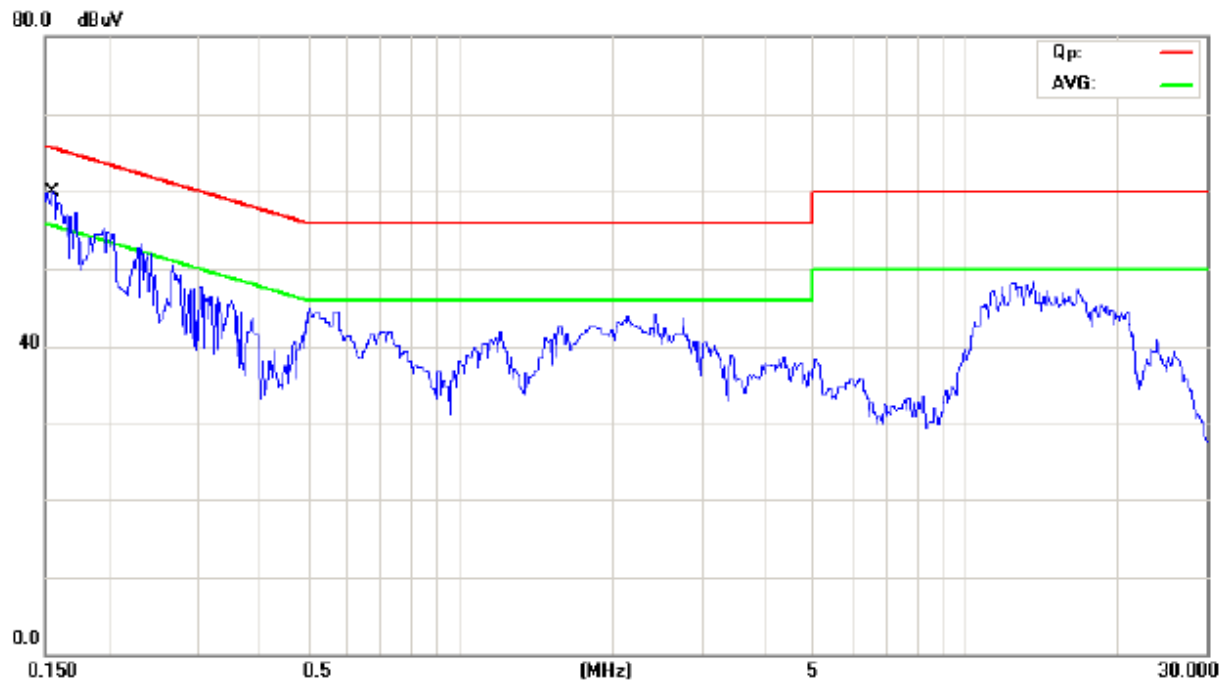


B Conducted Emission on Neutral Terminal of the power line (150kHz to 30MHz)

EUT set Condition: Keep WIFI Transmitting

Results: Pass

Please refer to following diagram for individual



Frequency (MHz)	Reading(dB μ V)				Limit (dB μ V)	
	Live		Neutral			
	Quasi-peak	Average	Quasi-peak	Average	Quasi-peak	Average
0.153	--	--	57.20	38.10	65.79	55.79

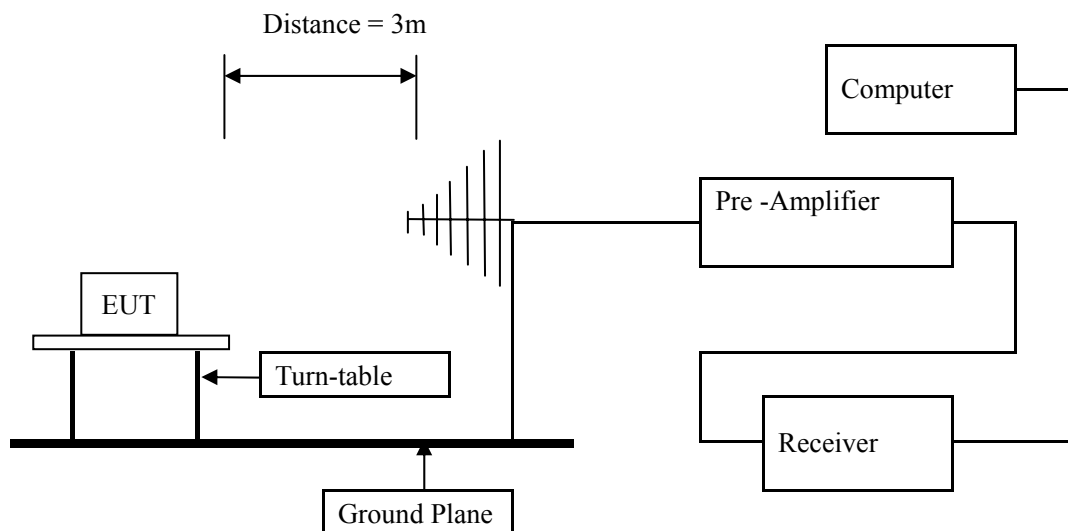
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## 6 Radiated Emission Test

### 6.1 Test Method and test Procedure:

- (1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "QP" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.

#### Block diagram of Test setup



### 6.2 Configuration of The EUT

Same as section 5.3 of this report

### 6.3 EUT Operating Condition

Same as section 5.4 of this report.

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#### 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

**Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109**

Frequency Range (MHz)	Distance (m)	Field strength (dB $\mu$ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

- Note:
1. RF Voltage (dBuV) = 20 log RF Voltage ( $\mu$ V)
  2. In the Above Table, the higher limit applies at the band edges.
  3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT



**Test result**

**General Radiated Emission Data and Harmonics Radiated Emission Data**

**Radiated Emission In Horizontal (30MHz---1000MHz)**

EUT set Condition: Keep WIFI Transmitting

**Results:** Pass

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
146.630	39.01	H	43.50
297.150	42.49	H	46.00
345.345	43.17	H	46.00
388.325	41.79	H	46.00
522.275	42.24	H	46.00
891.600	40.16	H	46.00
296.750	41.79	V	46.00
345.345	42.57	V	46.00
388.325	41.99	V	46.00
522.275	41.74	V	46.00
891.600	40.16	V	46.00

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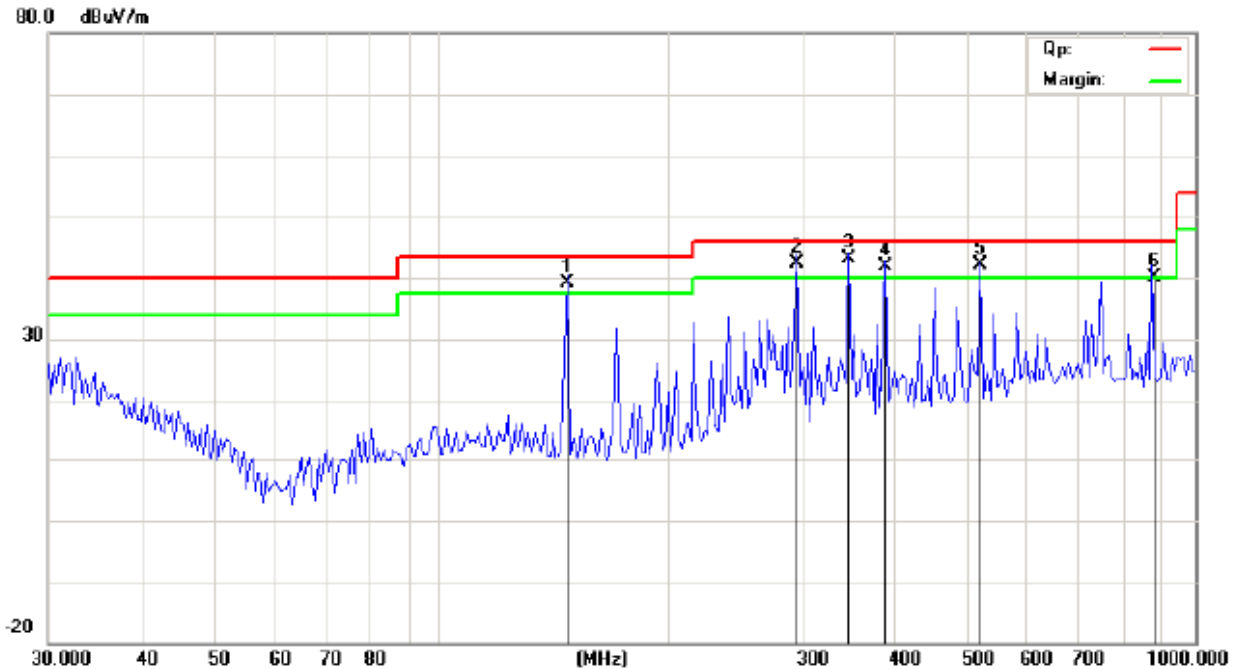
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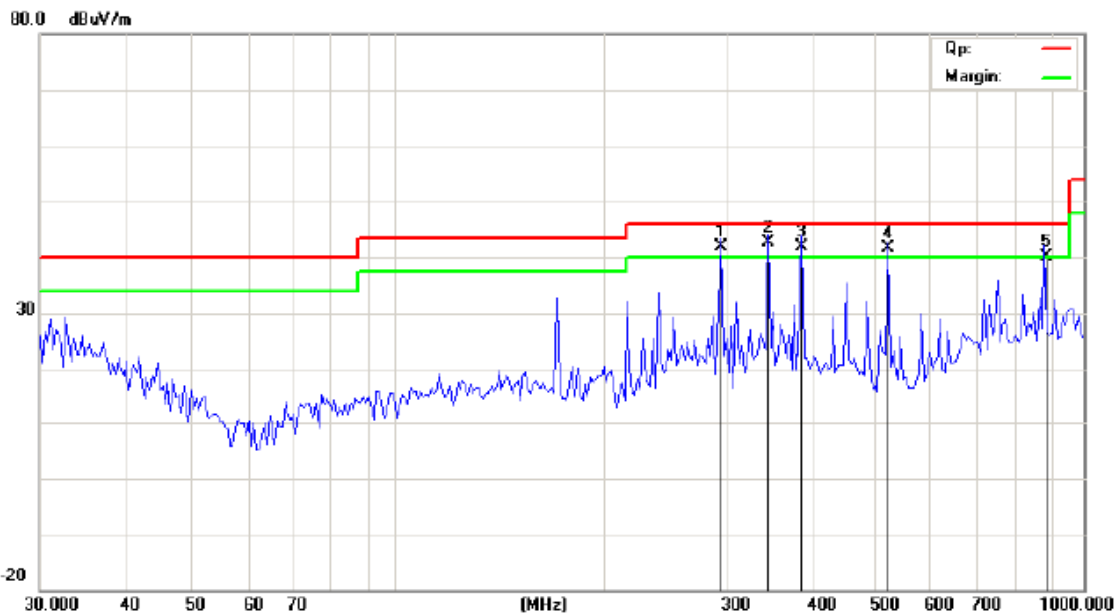
Test Figure:

H



Test Figure:

V



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**Operation Mode: Transmitting & Receiving under CH01 at 54Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2412.00	95.39 (PK)	H	Fundamental Frequency
2412.00	95.50 (PK)	V	
4824.00	46.40(PK)	H	74(Peak)/ 54(AV)
4824.00	54.71(PK)/44.81(AV)	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16884		H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark "---" means that the emissions level is too low to be measured  
 3. For 802.11g mode 54Mbps



**Operation Mode: Transmitting & Receiving under CH06 at 54Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2437.00	94.37 (PK)	H	Fundamental Frequency
2437.00	99.56 (PK)	V	
4874.00	--	H	74(Peak)/ 54(AV)
4874.00	51.70(PK)/43.03(AV)	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11g mode 54Mbps

**Operation Mode: Transmitting & Receiving under CH11 at 54Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2462.00	95.62 (PK)	H	Fundamental Frequency
2462.00	97.25 (PK)	V	
4924	--	H	74(Peak)/ 54(AV)
4924	--	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11g mode at 54Mbps

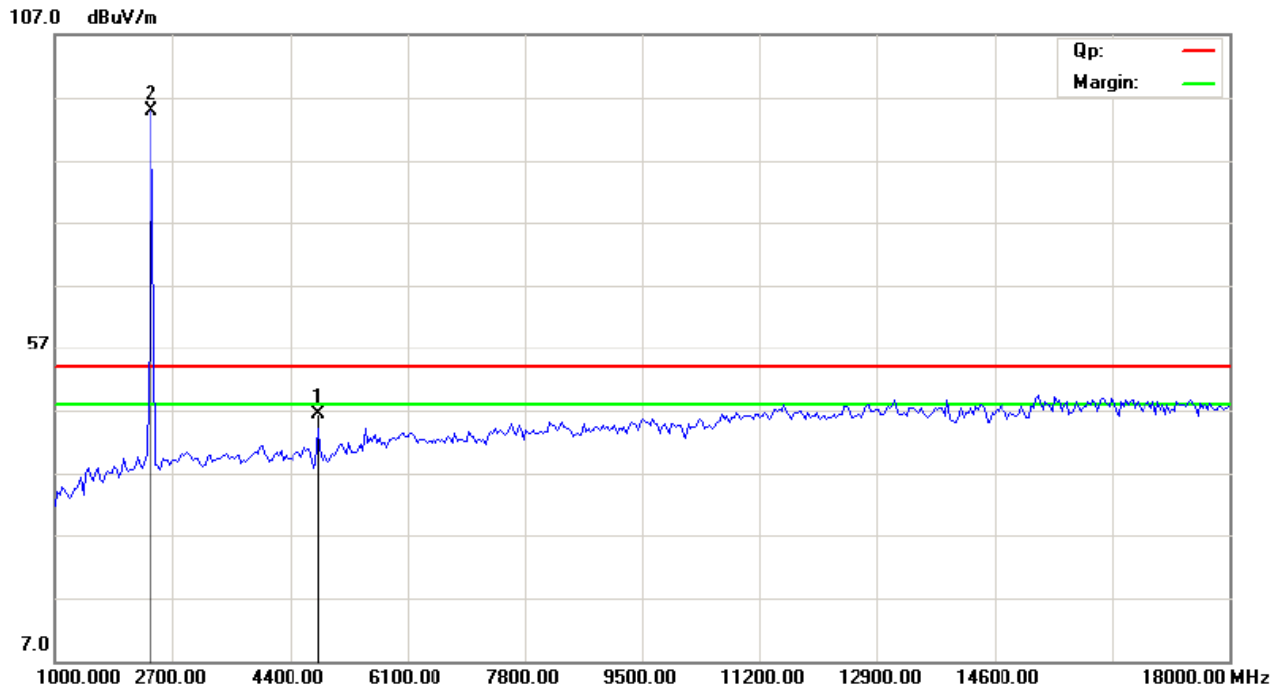
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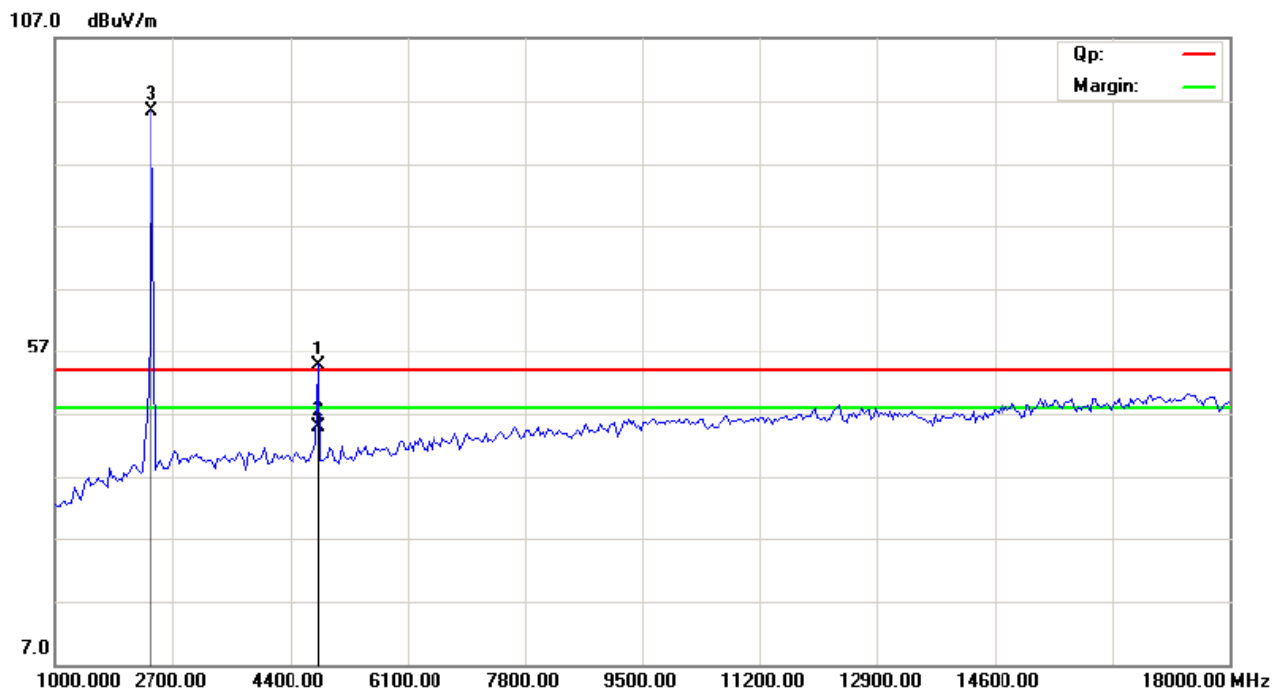
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Please refer to the following test plots for details:

**CH01 at 54Mbps: Horizontal**



**CH01 at 54Mbps: Vertical**

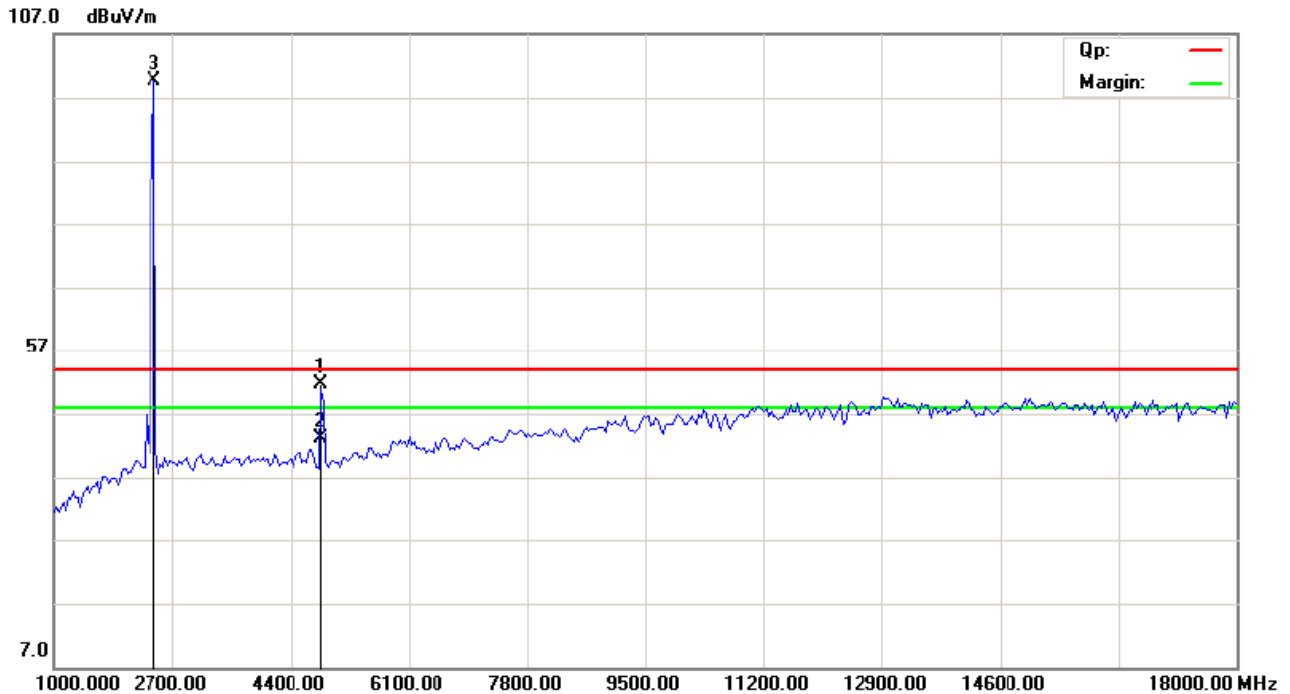


The report refers only to the sample tested and does not apply to the bulk.

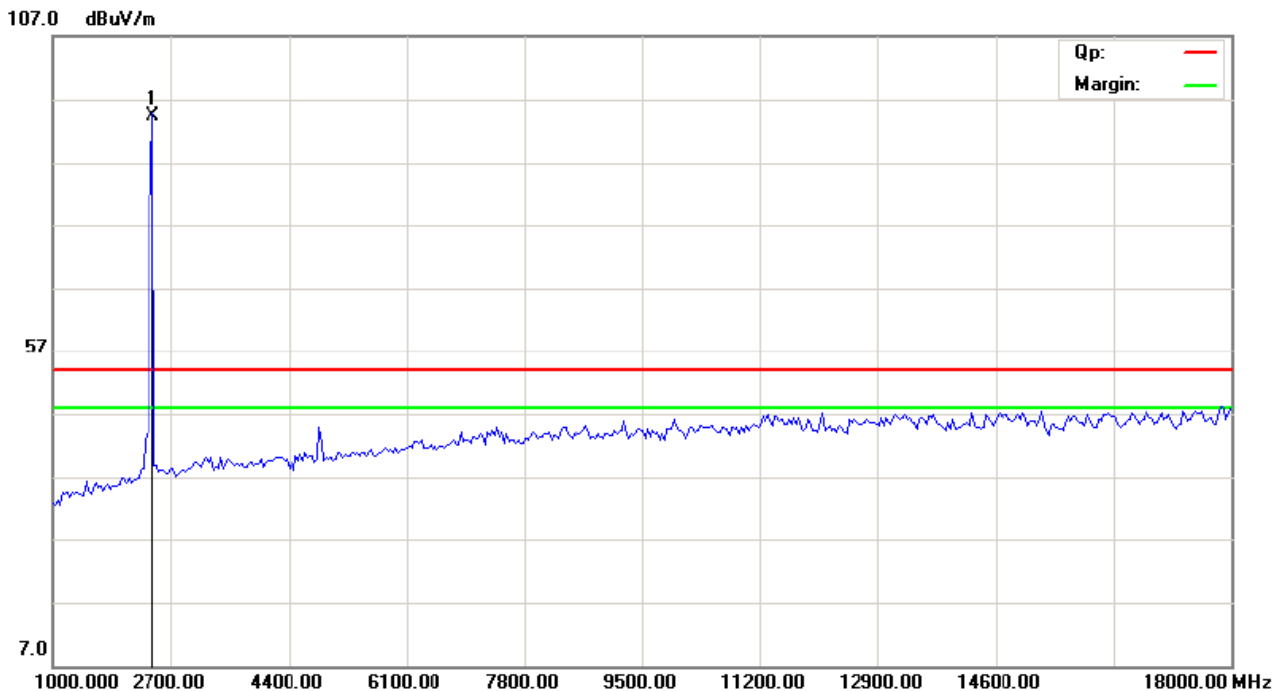
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### CH06 at 54Mbps: Vertical



### CH06 at 54Mbps: Horizontal

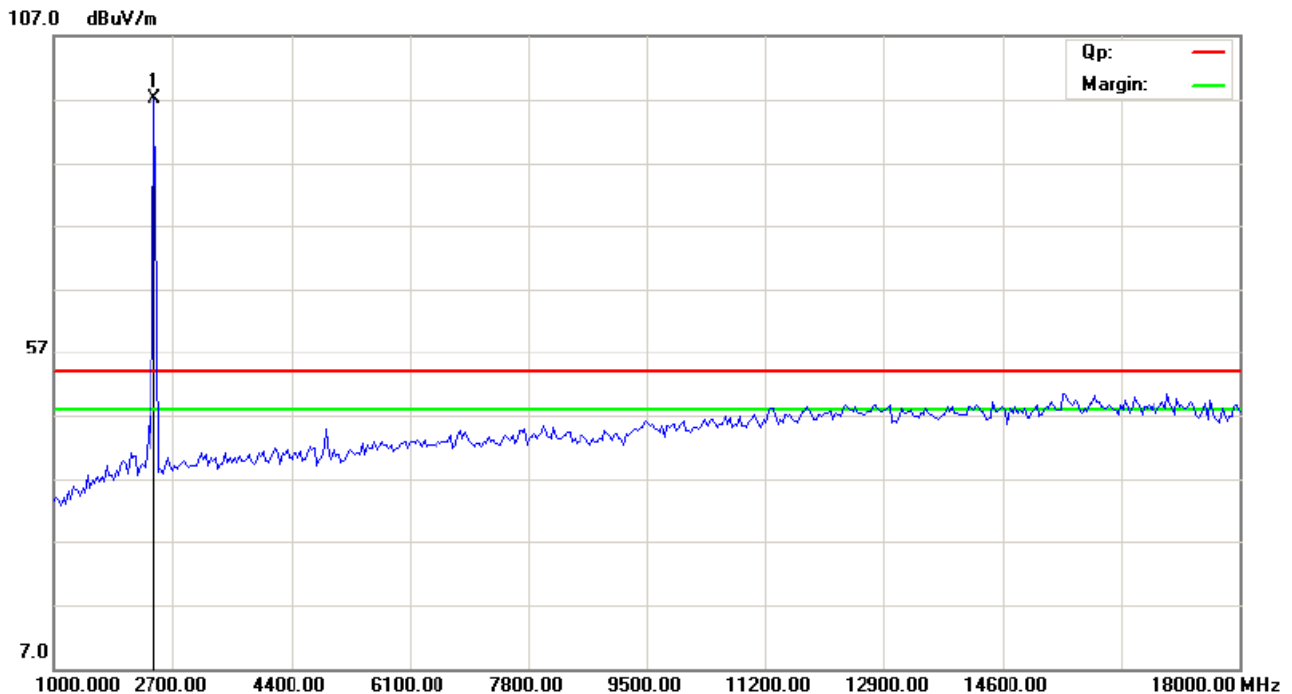


The report refers only to the sample tested and does not apply to the bulk.

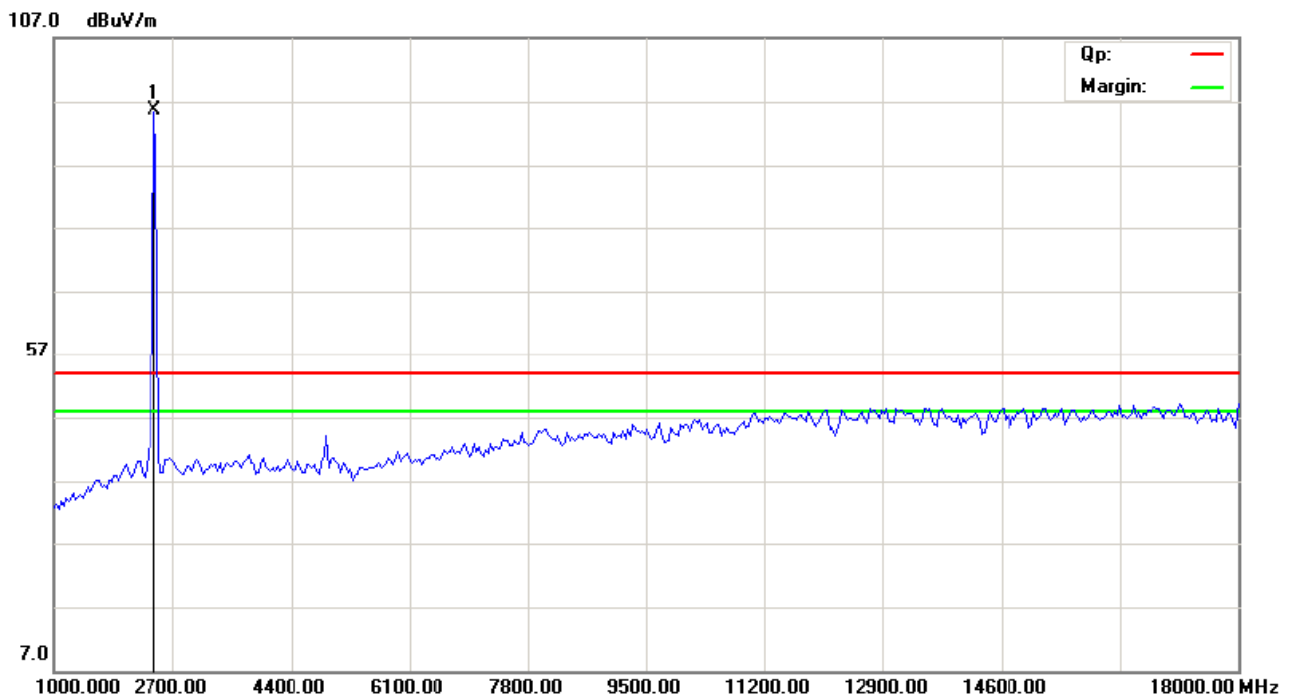
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### CH11 at 54Mbps: Vertical



### CH11at 54Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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**Operation Mode: Transmitting & Receiving under CH01 at 11Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2412.00	98.07 (PK)	V	Fundamental Frequency
2412.00	94.04 (PK)	H	
4824.00	--	H	74(Peak)/ 54(AV)
4824.00	55.71(PK)/45.94(AV)	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11b mode 11Mbps

**Operation Mode: Transmitting & Receiving under CH06 at 11Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2437.00	95.97 (PK)	H	Fundamental Frequency
2437.00	98.71 (PK)	V	
4874.00	46.47(PK)	H	74(Peak)/ 54(AV)
4874.00	49.92(PK)/42.83(AV)	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11b mode 11Mbps

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**Operation Mode: Transmitting & Receiving under CH11 at 11Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2462.00	95.39 (PK)	H	Fundamental Frequency
2462.00	98.10 (PK)	V	
4924	--	H	74(Peak)/ 54(AV)
4924	--	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
 2. Remark "---" means that the emissions level is too low to be measured  
 3. For 802.11b mode at 11Mbps

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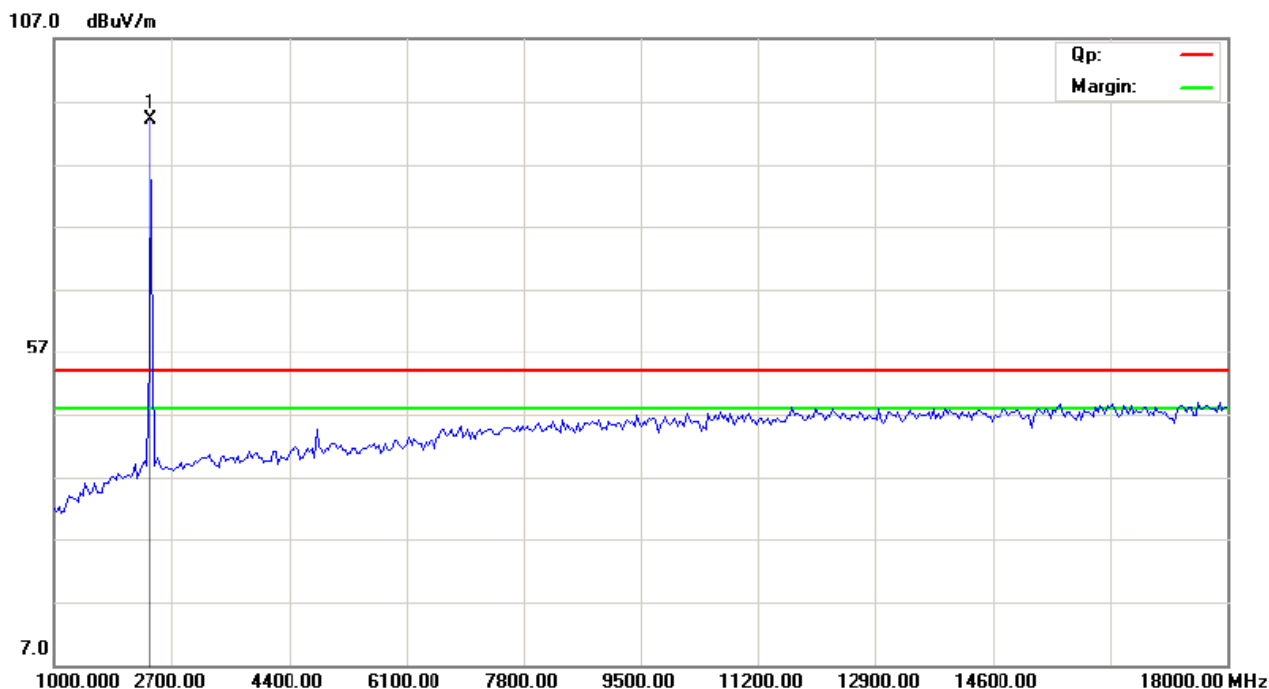
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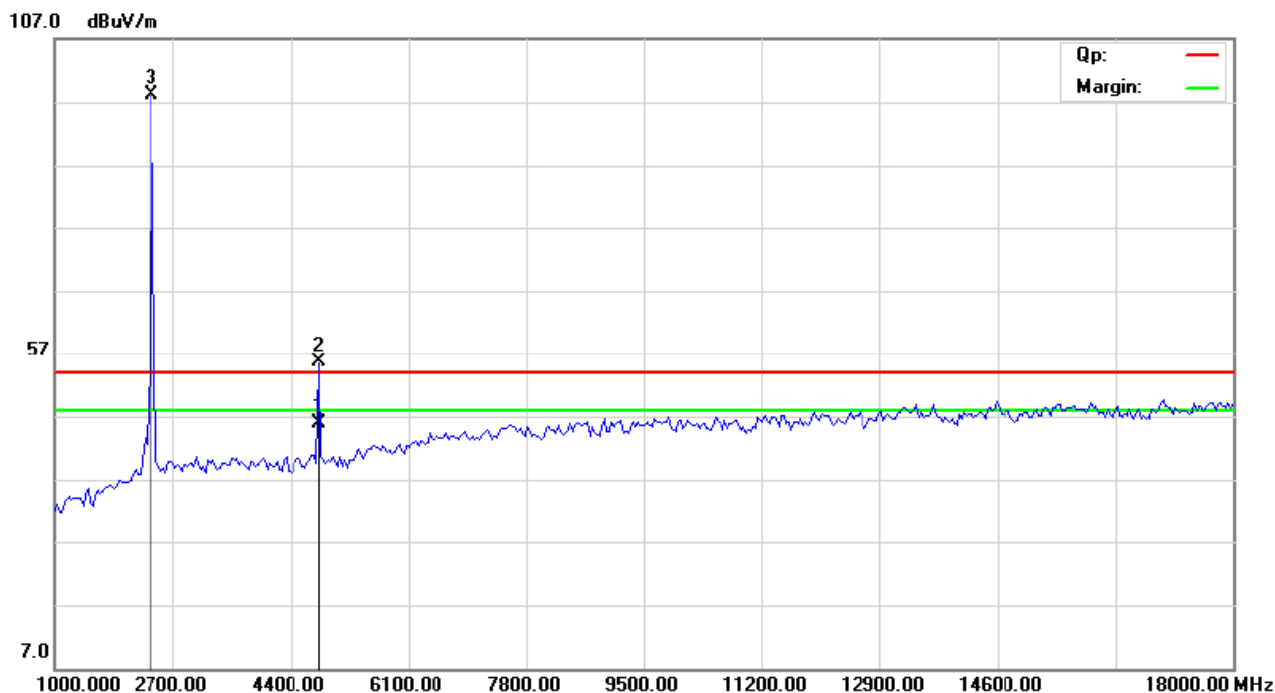


Please refer to the following test plots for details:

### CH01 at 11Mbps: Horizontal



### CH01 at 11Mbps: Vertical



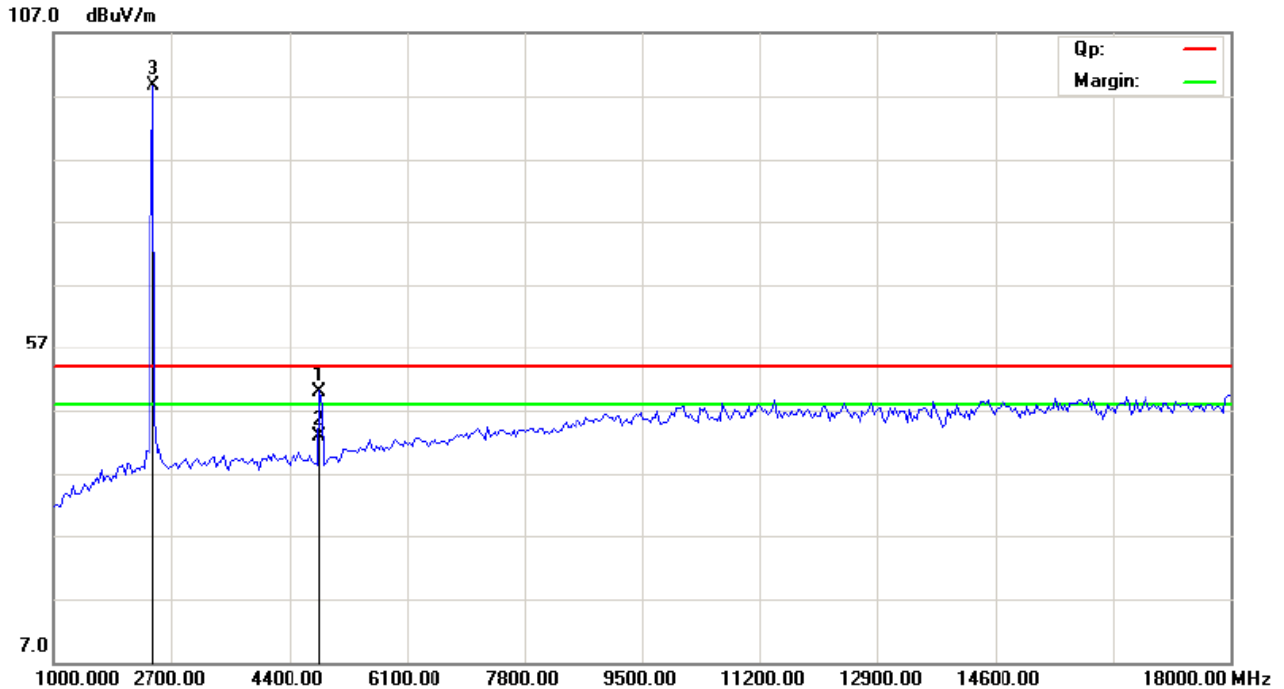
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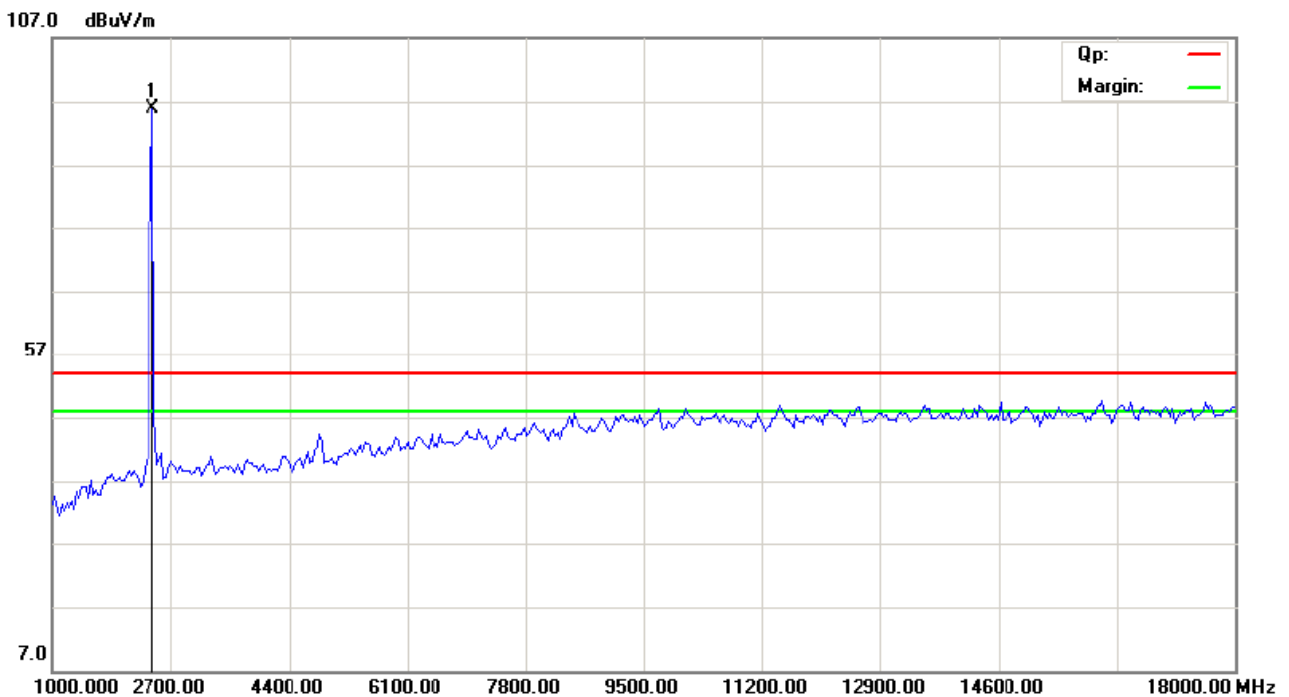
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### CH06 at 11Mbps: Vertical



### CH06 at 11Mbps: Horizontal

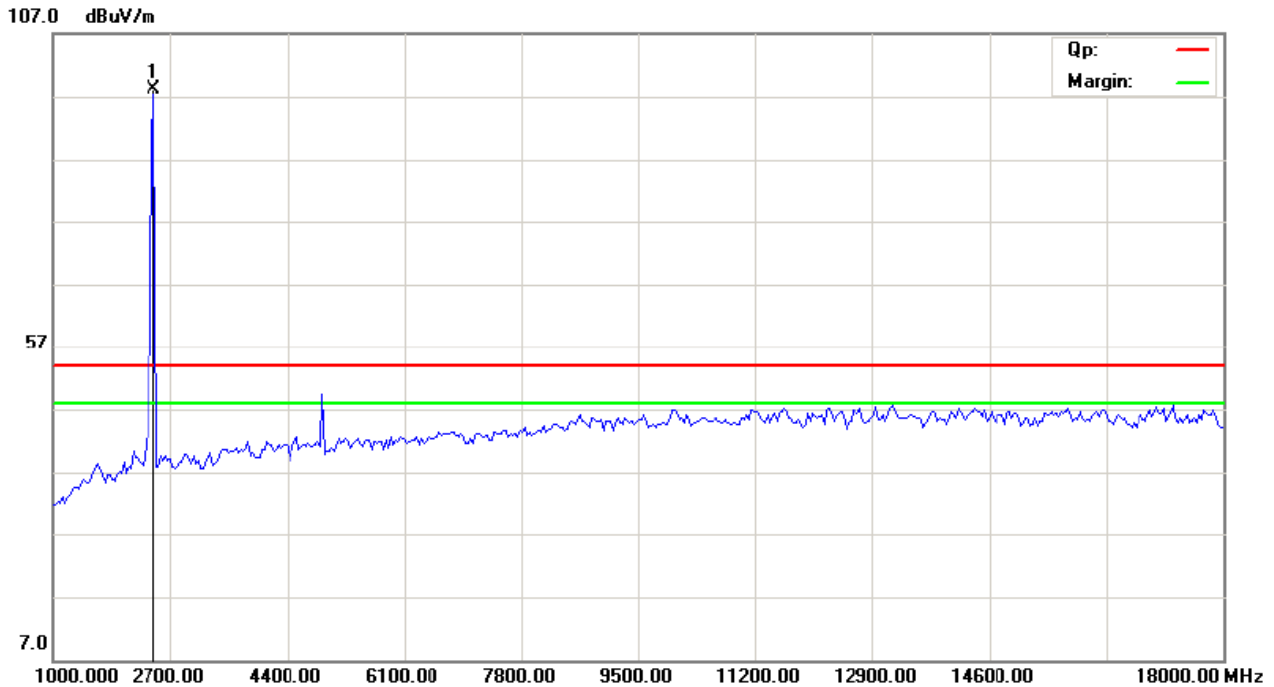


The report refers only to the sample tested and does not apply to the bulk.

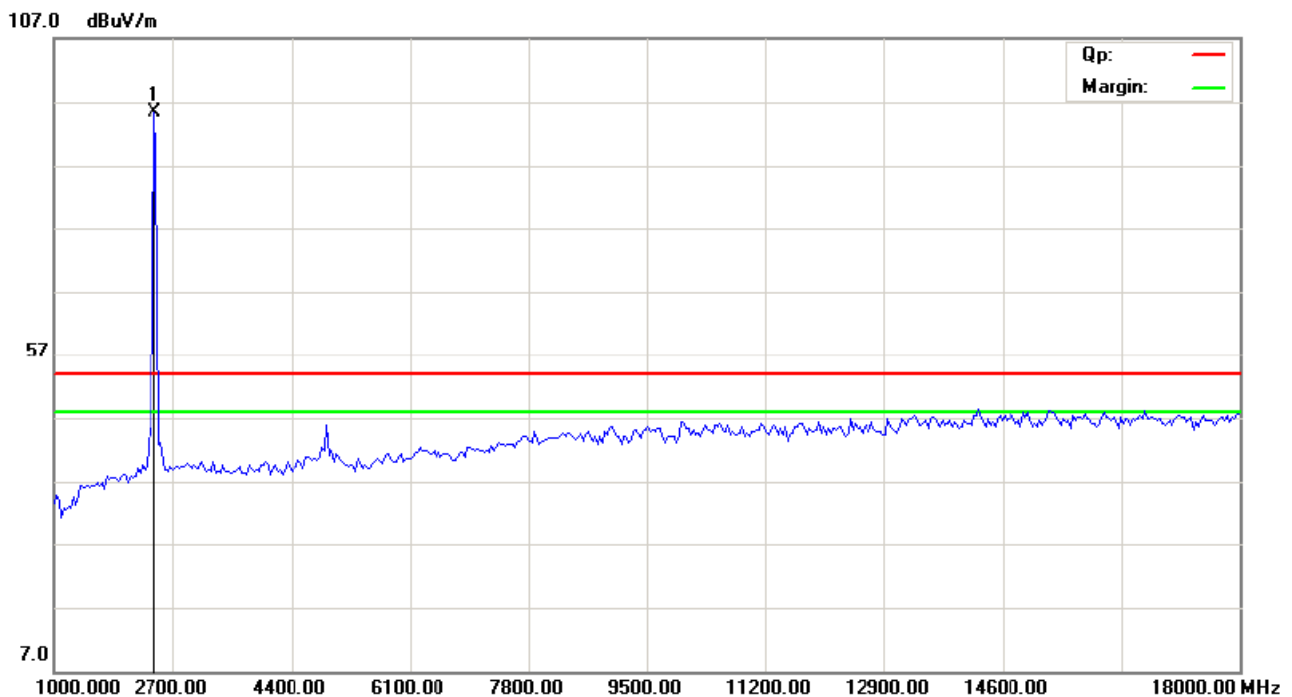
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### CH11 at 11Mbps: Vertical



### CH11 at 11Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

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**Operation Mode: Transmitting & Receiving under CH01 at 6.5Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2412.00	90.28 (PK)	H	Fundamental Frequency
2412.00	93.07(PK)	V	
4824.00	--	H	74(Peak)/ 54(AV)
4824.00	--	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11n (HT20) mode 6.5Mbps

**Operation Mode: Transmitting & Receiving under CH06 at 6.5Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2437.00	89.97 (PK)	H	Fundamental Frequency
2437.00	93.21(PK)	V	
4874.00	--	H	74(Peak)/ 54(AV)
4874.00	--	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11n (HT20) mode 6.5Mbps

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**Operation Mode: Transmitting & Receiving under CH11 at 6.5Mbps**

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Antenna Polarity	Limit@3m (dB $\mu$ V/m)
2462.00	90.67(PK)	H	Fundamental Frequency
2462.00	94.34(PK)	V	
4924	--	H	74(Peak)/ 54(AV)
4924	--	V	74(Peak)/ 54(AV)
7368	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24650	--	H/V	74(Peak)/ 54(AV)

- Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit  
2. Remark "---" means that the emissions level is too low to be measured  
3. For 802.11n (HT20) mode 6.5Mbps

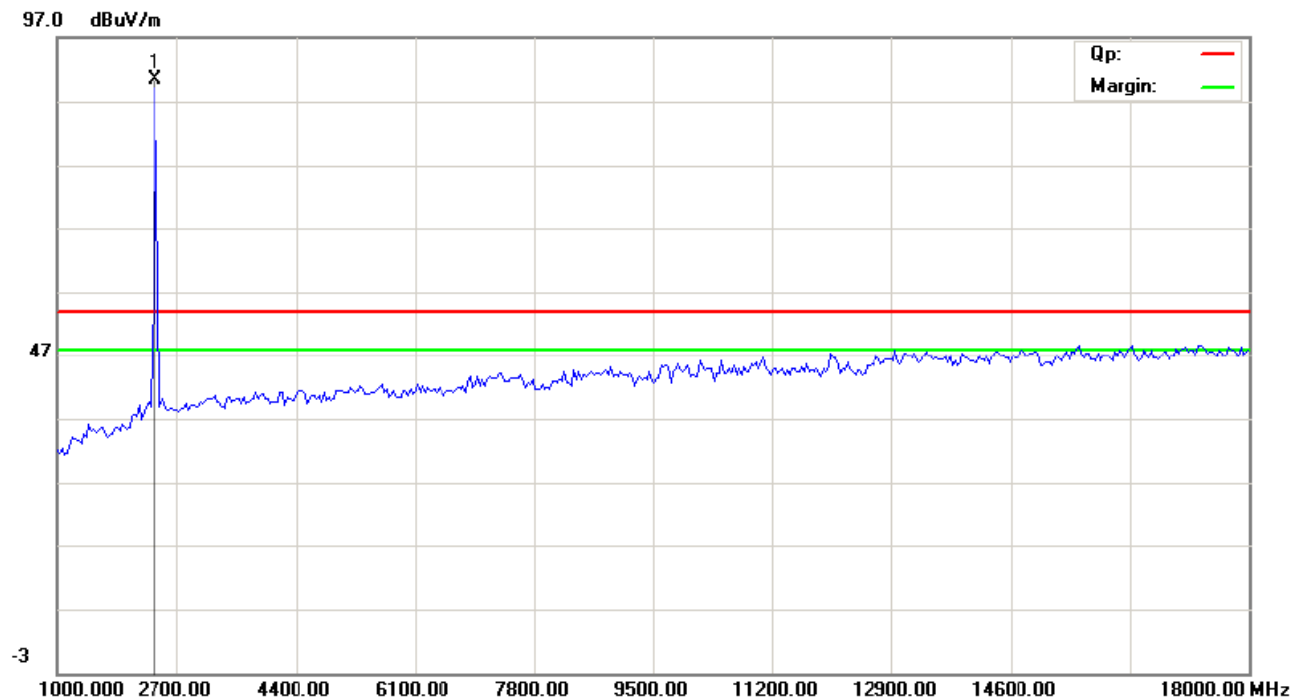
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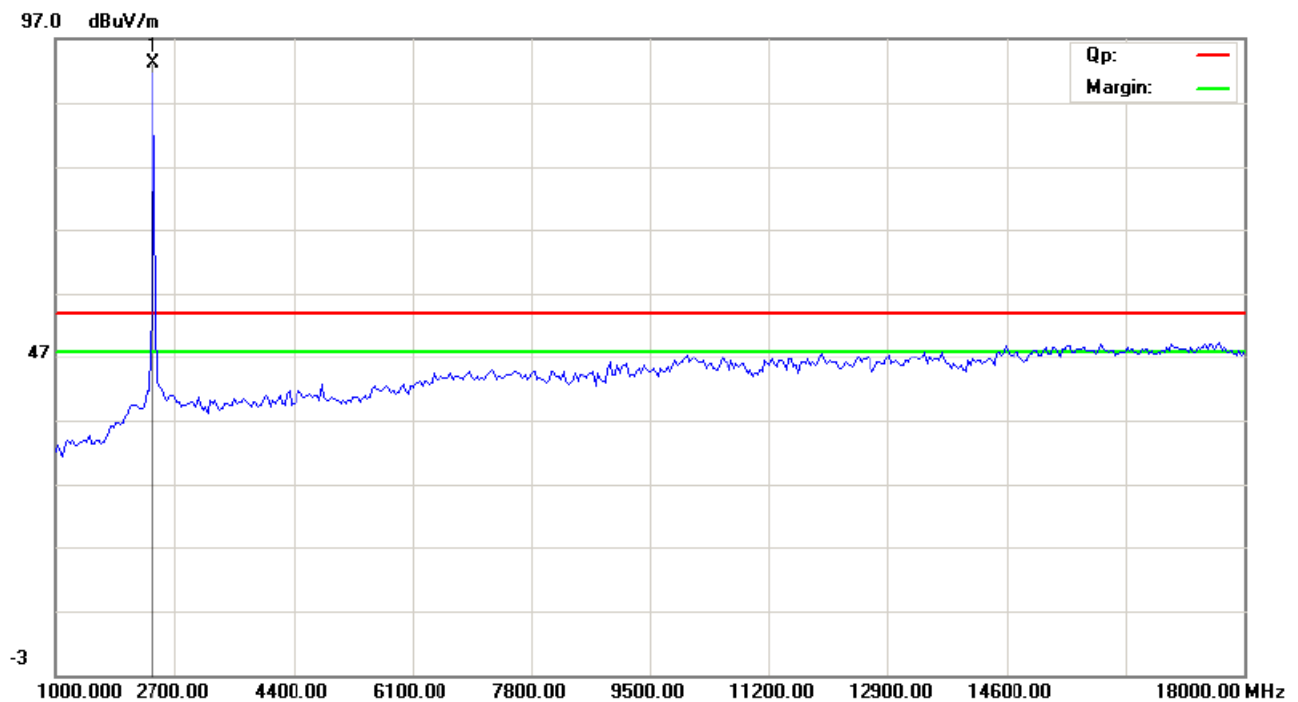
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Please refer to the following test plots for details:

**CH01 at 6.5Mbps: Horizontal**



**CH01 at 6.5Mbps: Vertical**



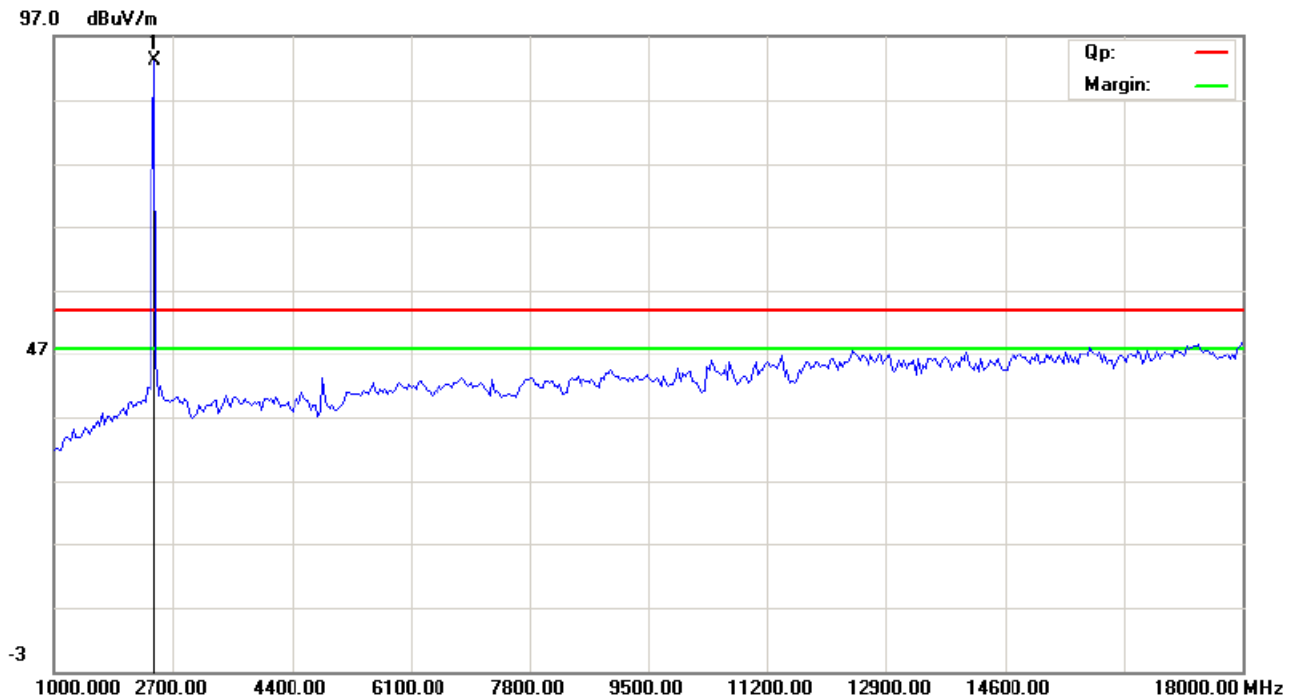
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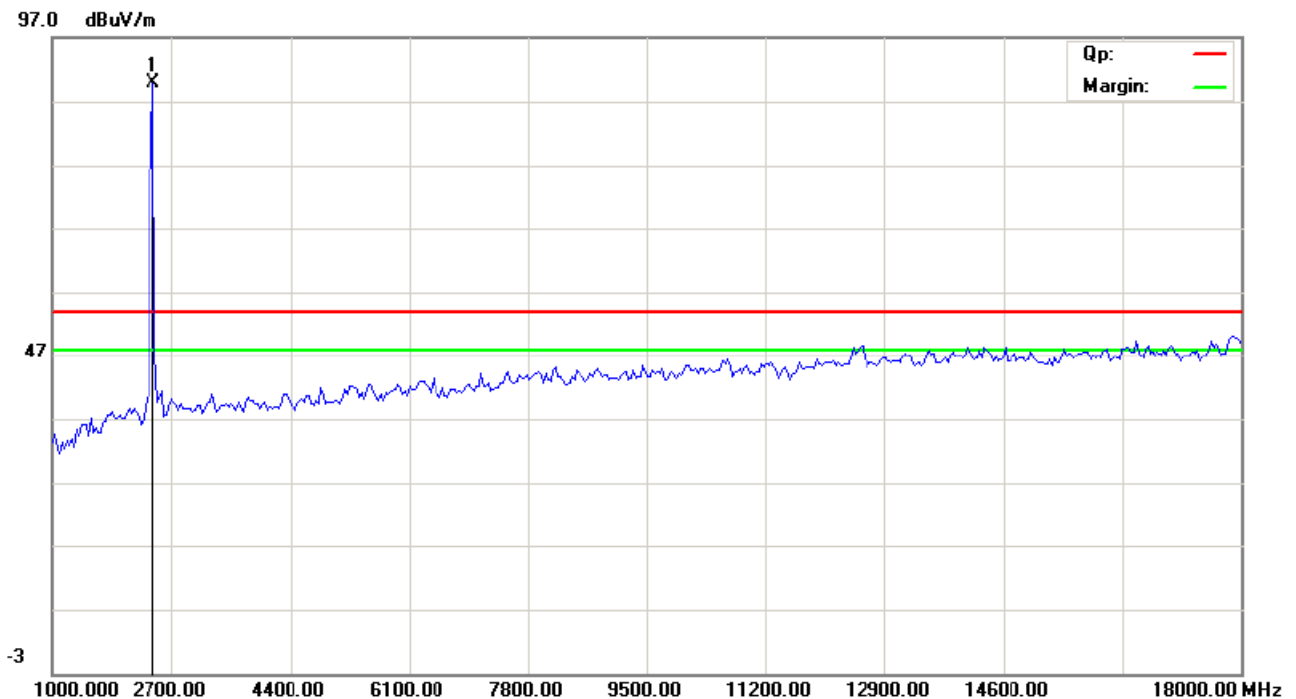
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### CH06 at 6.5Mbps: Vertical



### CH06 at 6.5Mbps: Horizontal

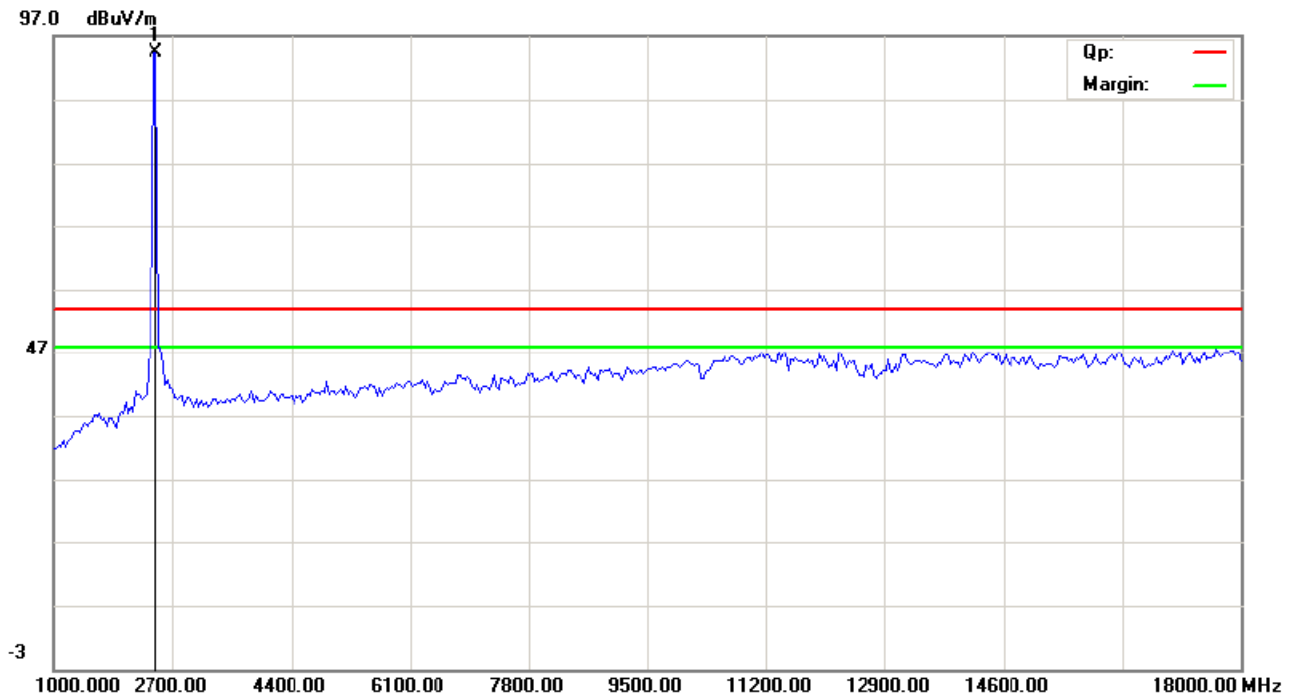


The report refers only to the sample tested and does not apply to the bulk.

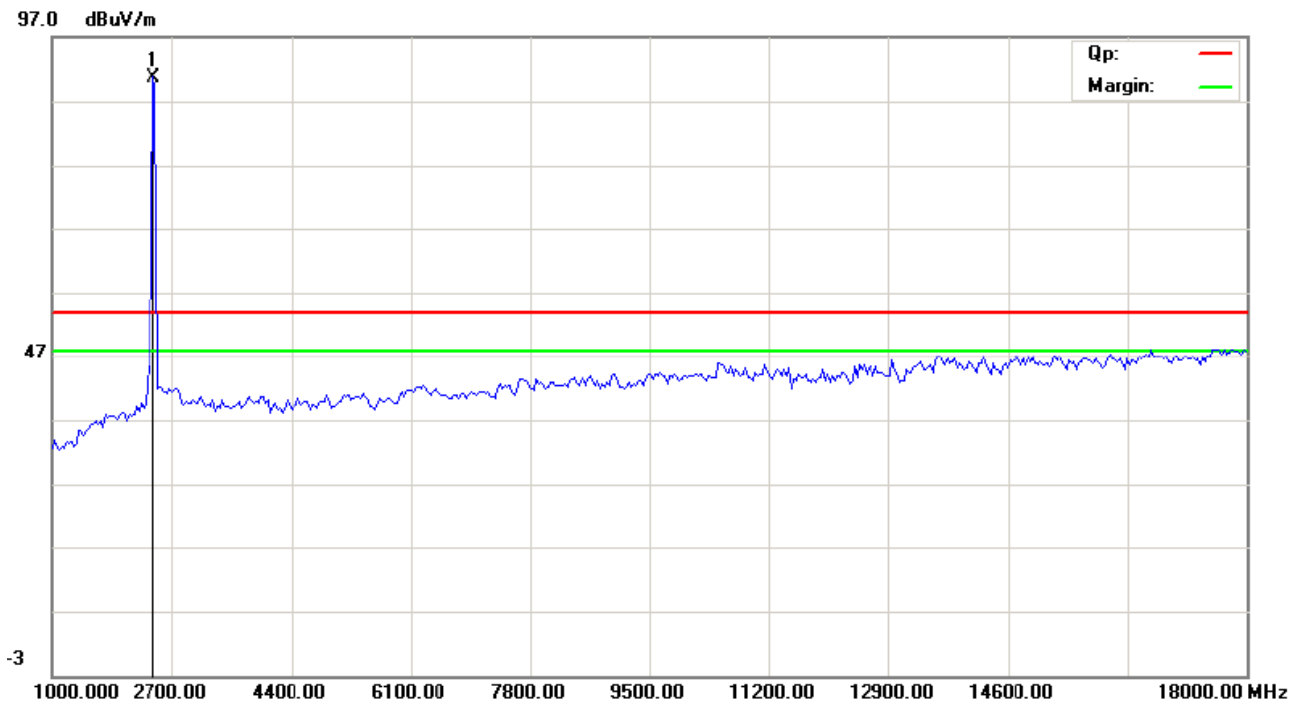
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### CH11 at 6.5Mbps: Vertical



### CH11 at 6.5Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

The report refers only to the sample tested and does not apply to the bulk.

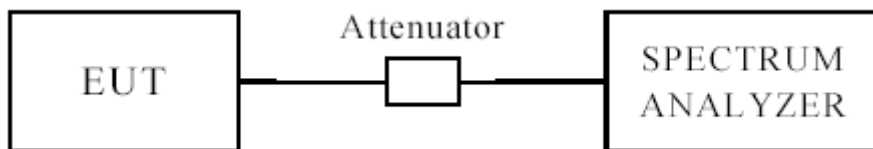
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## 7.0 6dB Bandwidth Measurement

### 7.1 Test Setup



### 7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500 kHz

### 7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 1-5 % of the emission bandwidth (EBW).
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission. Compare the resultant bandwidth with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is 1-5 %.

### 7.4 Test Result

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### 6dB Occupied Bandwidth

EUT	IP Camera		Model	137P	
Mode	802.11b		Input Voltage	AC 120V	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
1	2412	1	10.32	0.5	Pass
6	2437	1	10.26	0.5	Pass
11	2462	1	10.32	0.5	Pass
1	2412	11	10.26	0.5	Pass
6	2437	11	10.20	0.5	Pass
11	2462	11	10.20	0.5	Pass

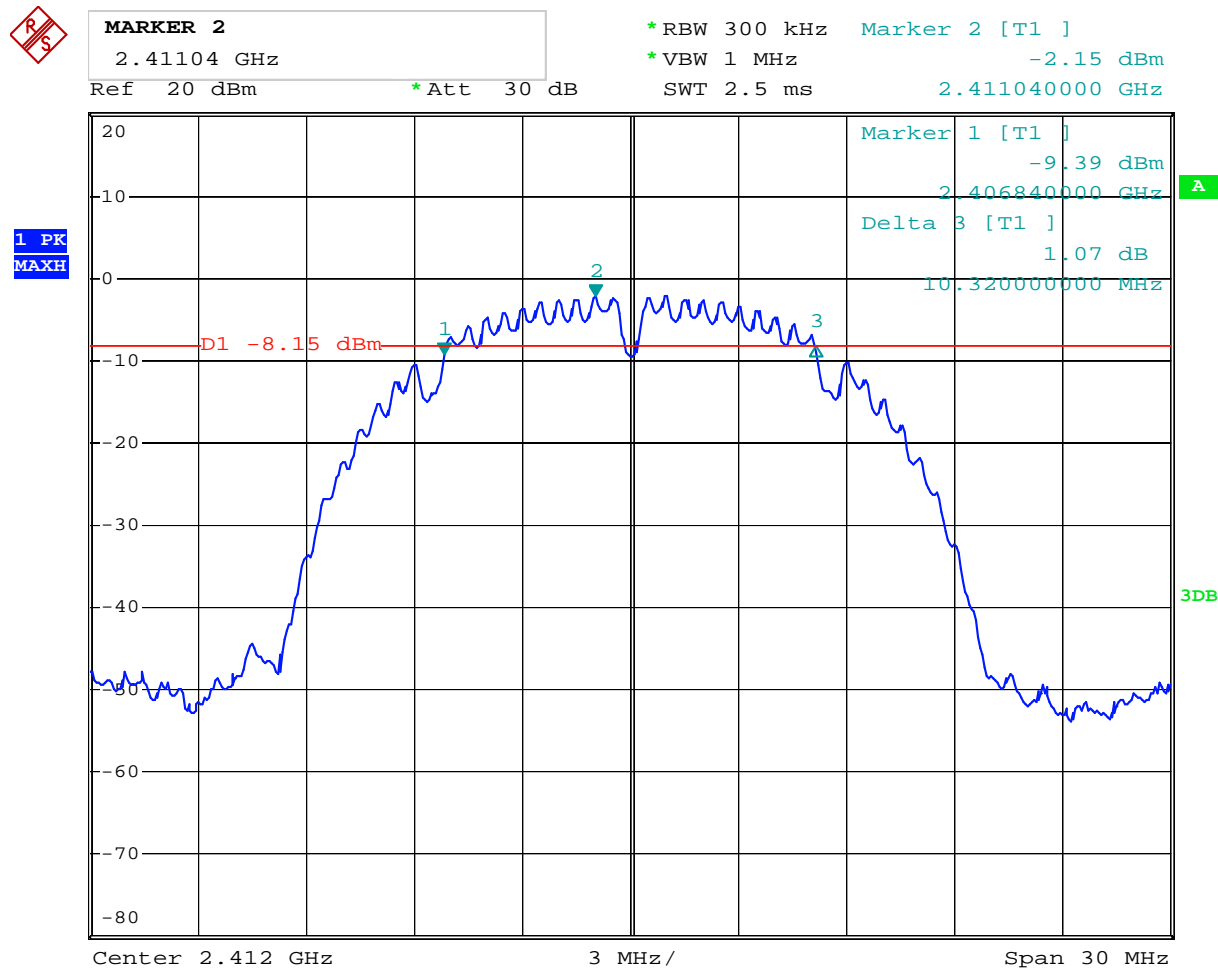
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1. 802.11b at 1Mbps of CH01

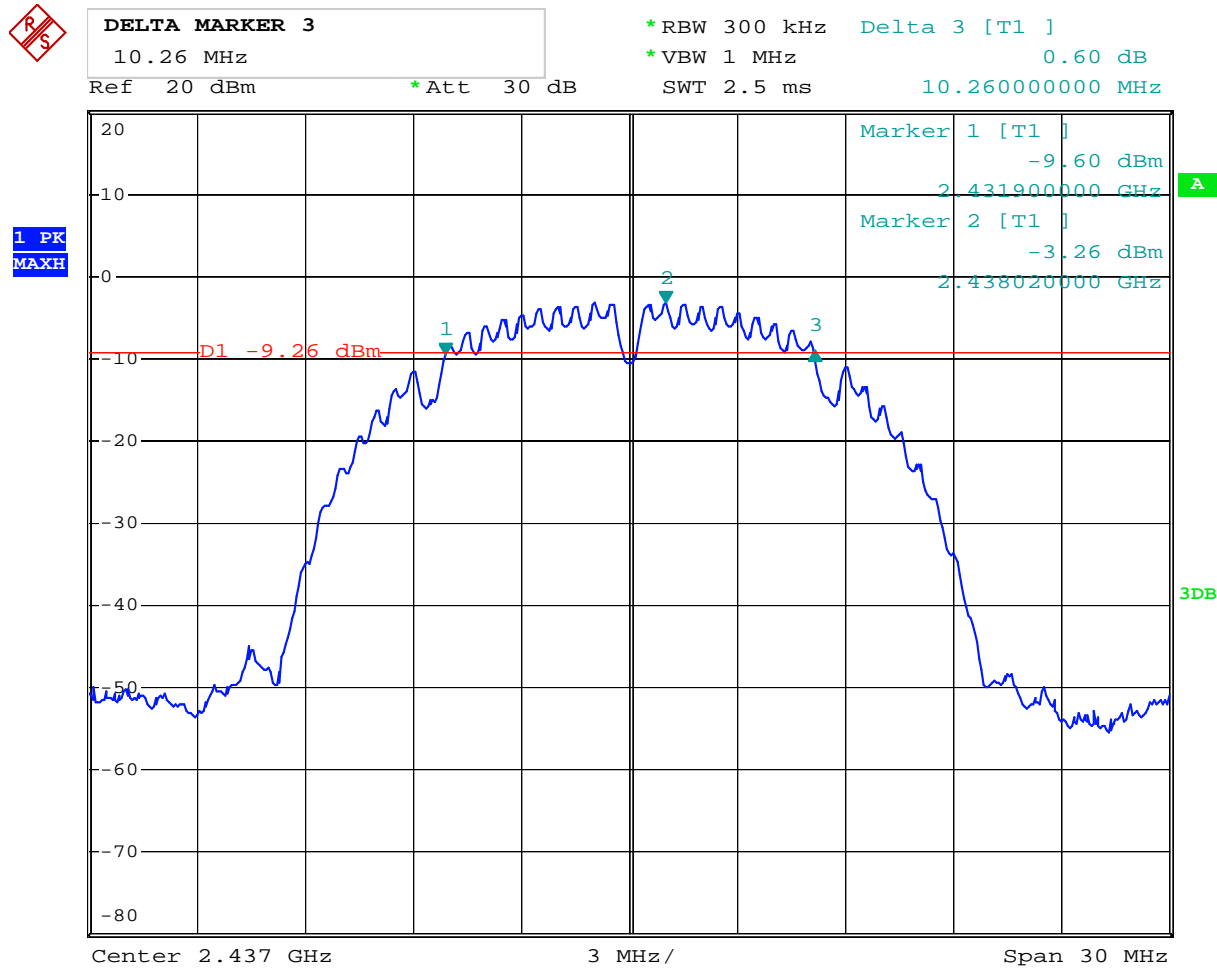


Date: 4.JUN.2012 16:50:08

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2. 802.11b at 1Mbps of CH06

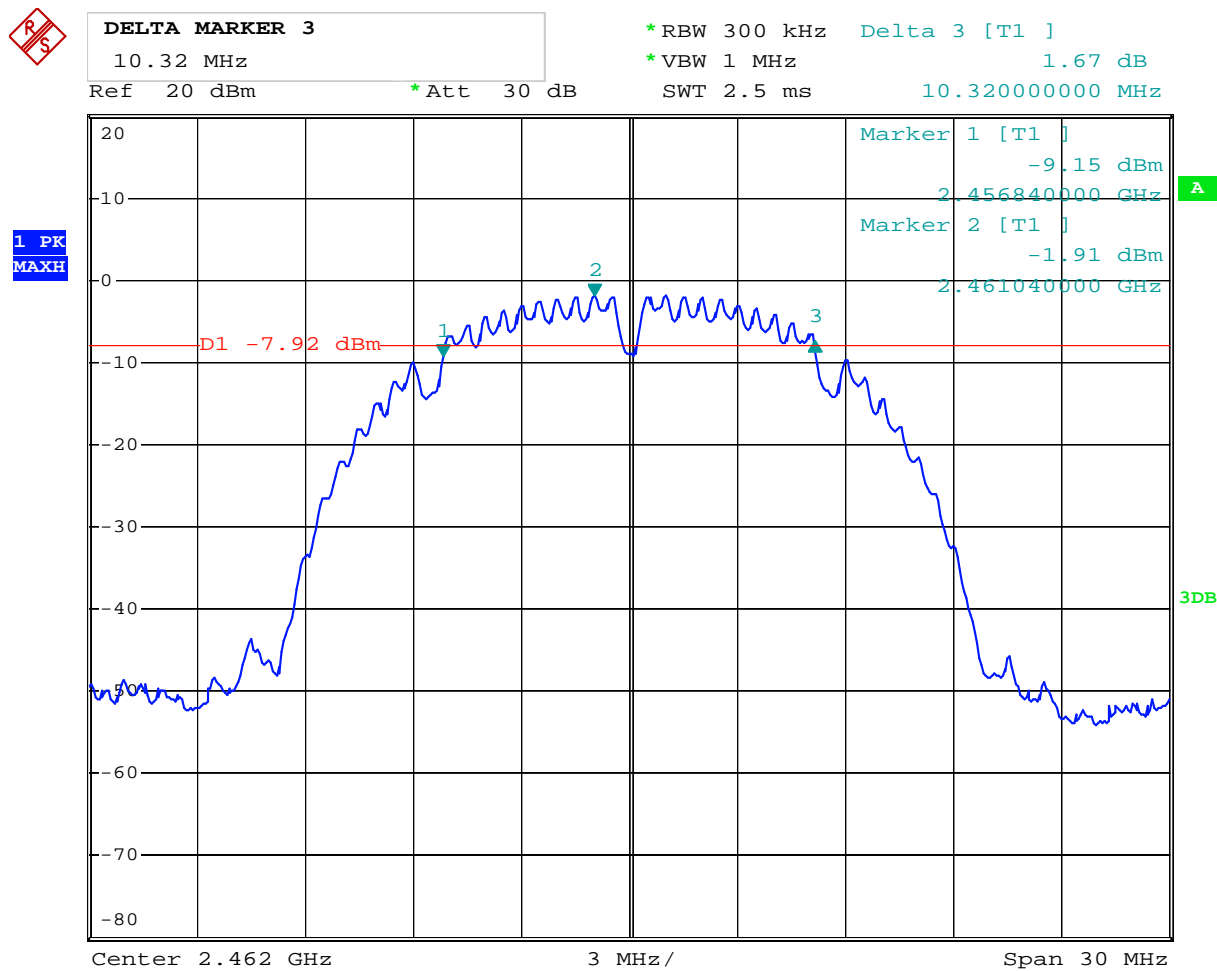


Date: 4.JUN.2012 17:47:04

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3. 802.11b at 1Mbps of CH11

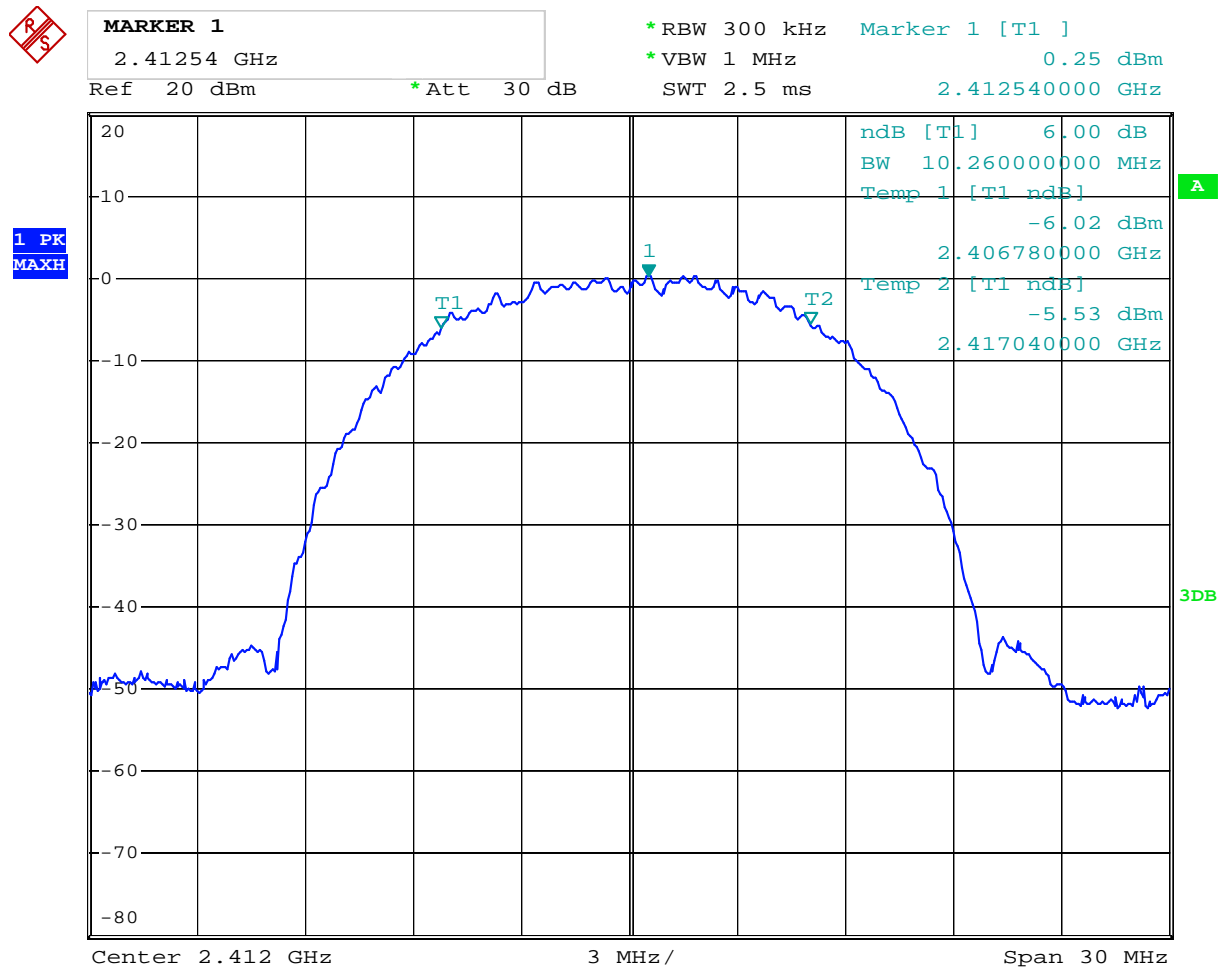


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4. 802.11b at 11Mbps of CH01

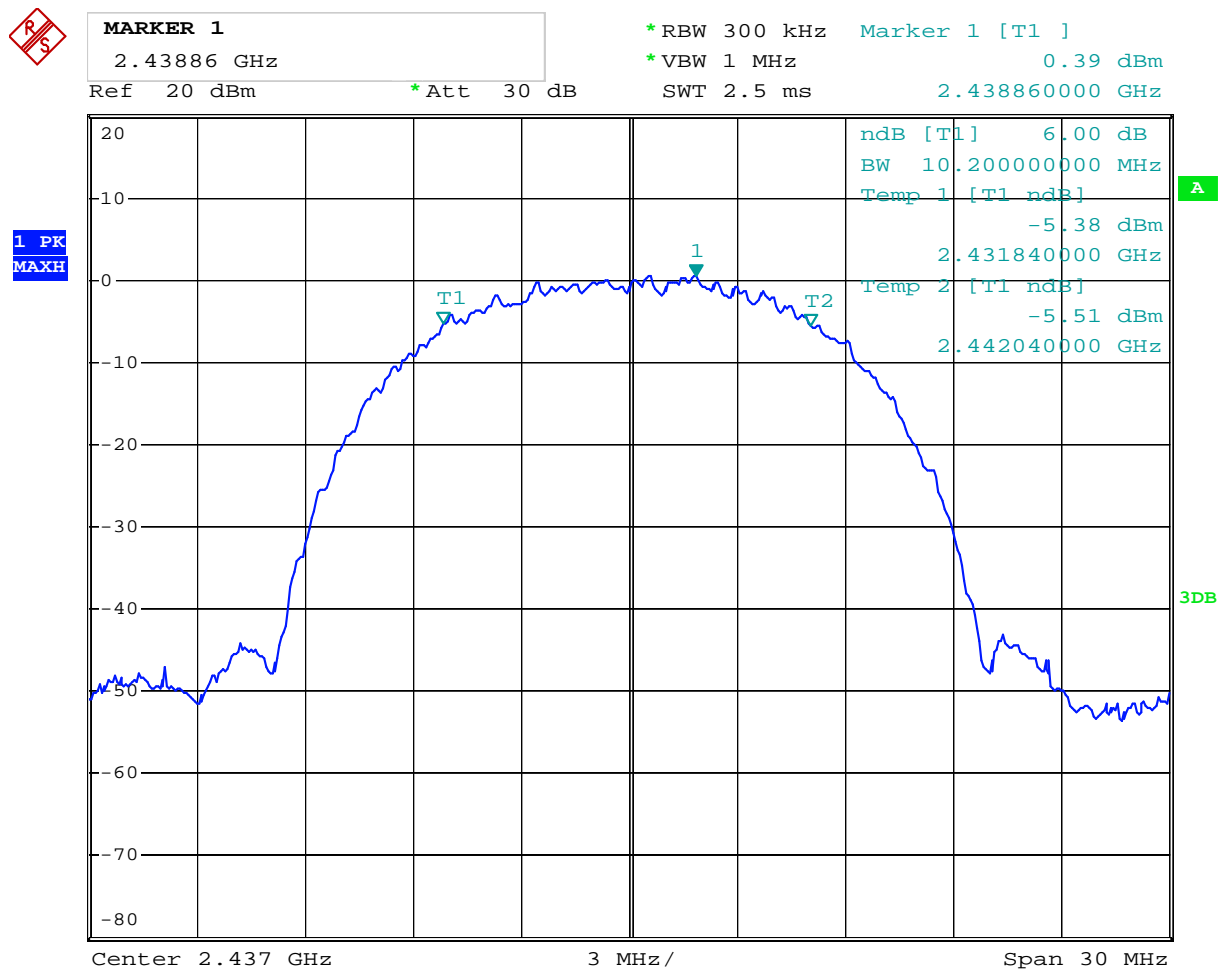


Date: 4.JUN.2012 16:55:01

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5. 802.11b at 11Mbps of CH06

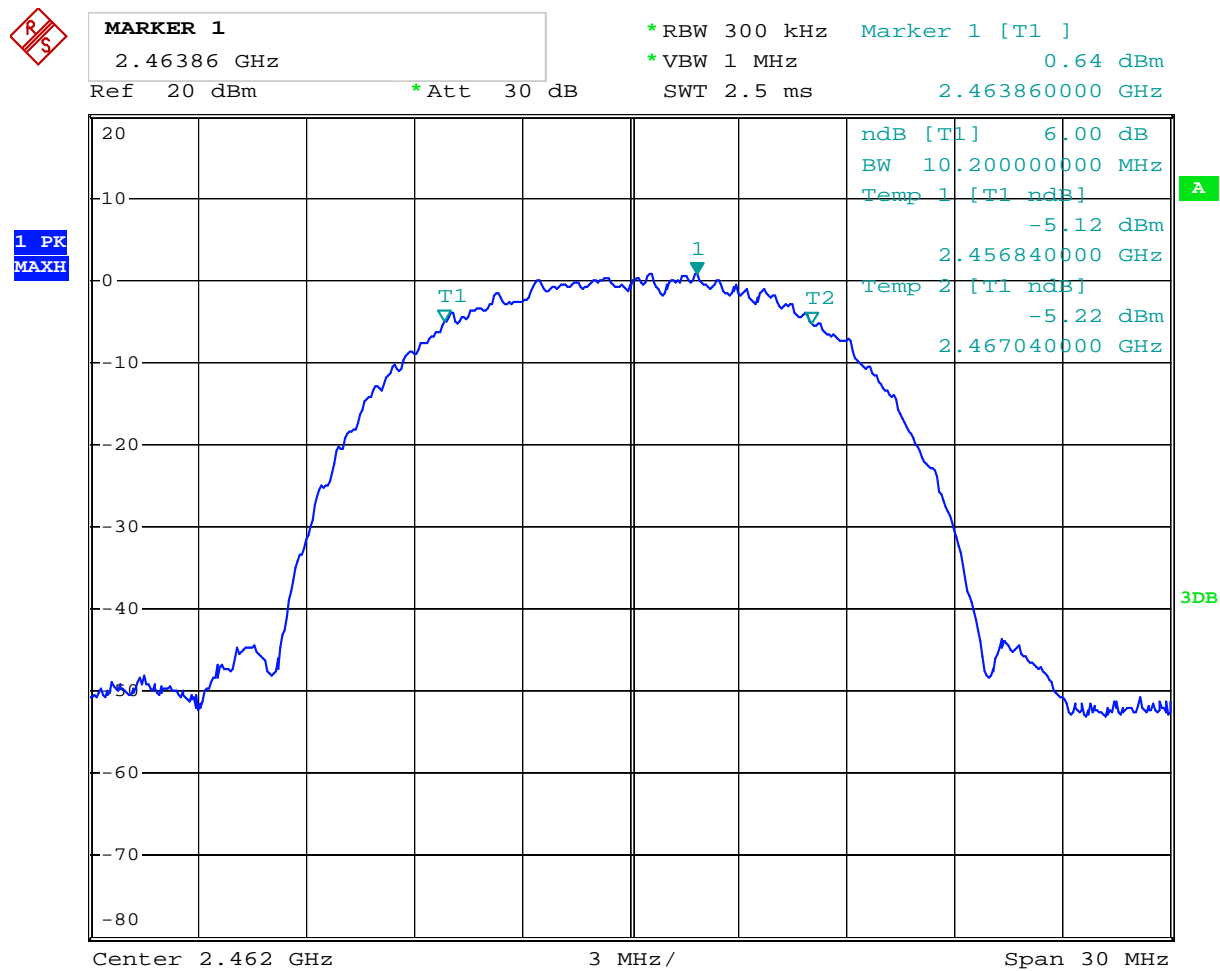


Date: 4.JUN.2012 17:06:27

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6. 802.11b at 11Mbps of CH11



Date: 4.JUN.2012 17:57:54

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### 6dB Occupied Bandwidth

EUT	IP Camera		Model	137P	
Mode	802.11g		Input Voltage	AC 120V	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
1	2412	54	16.56	0.5	Pass
6	2437	54	16.56	0.5	Pass
11	2462	54	16.56	0.5	Pass

The report refers only to the sample tested and does not apply to the bulk.

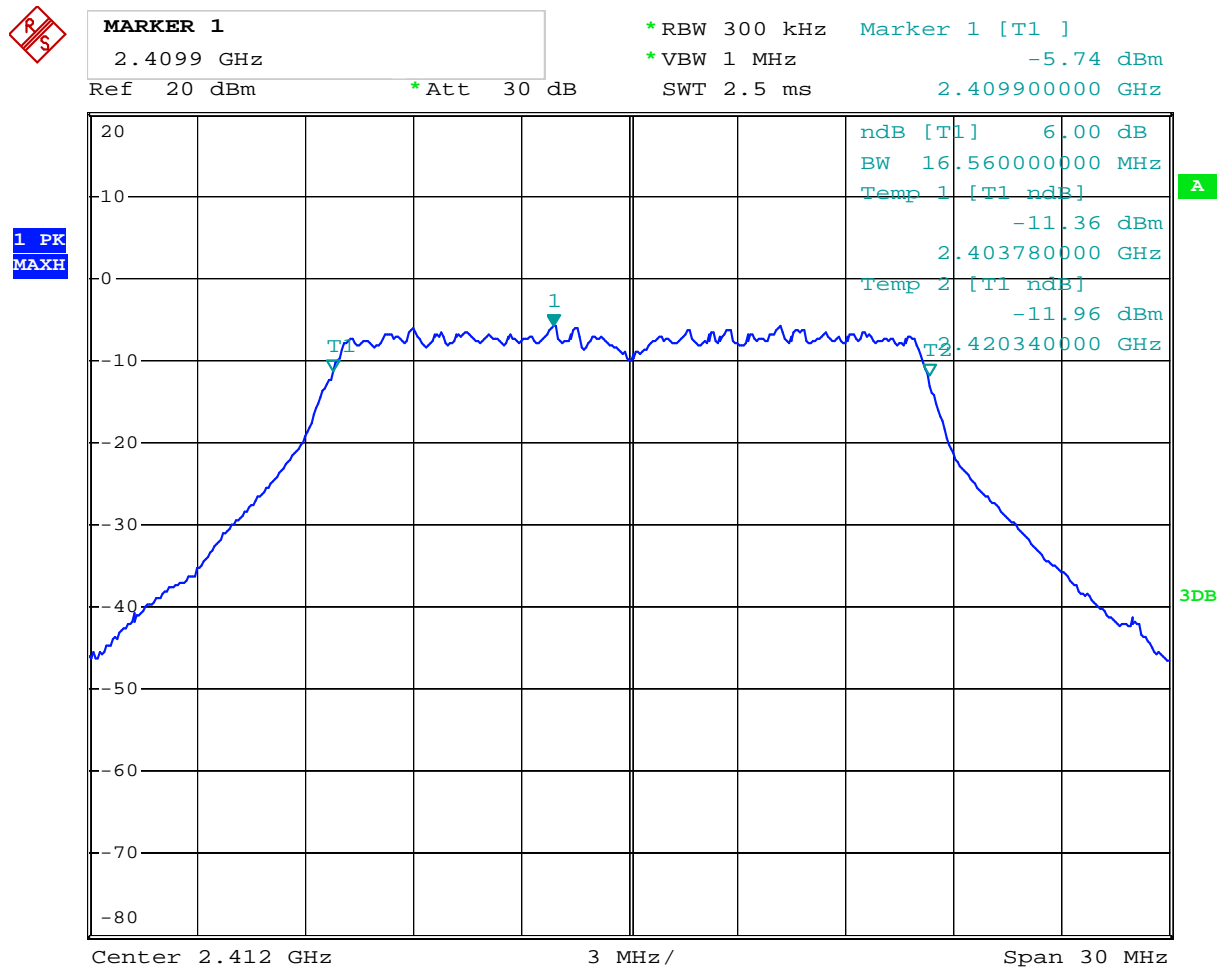
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Test Plots:

1. 802.11g at 54Mbps of CH01

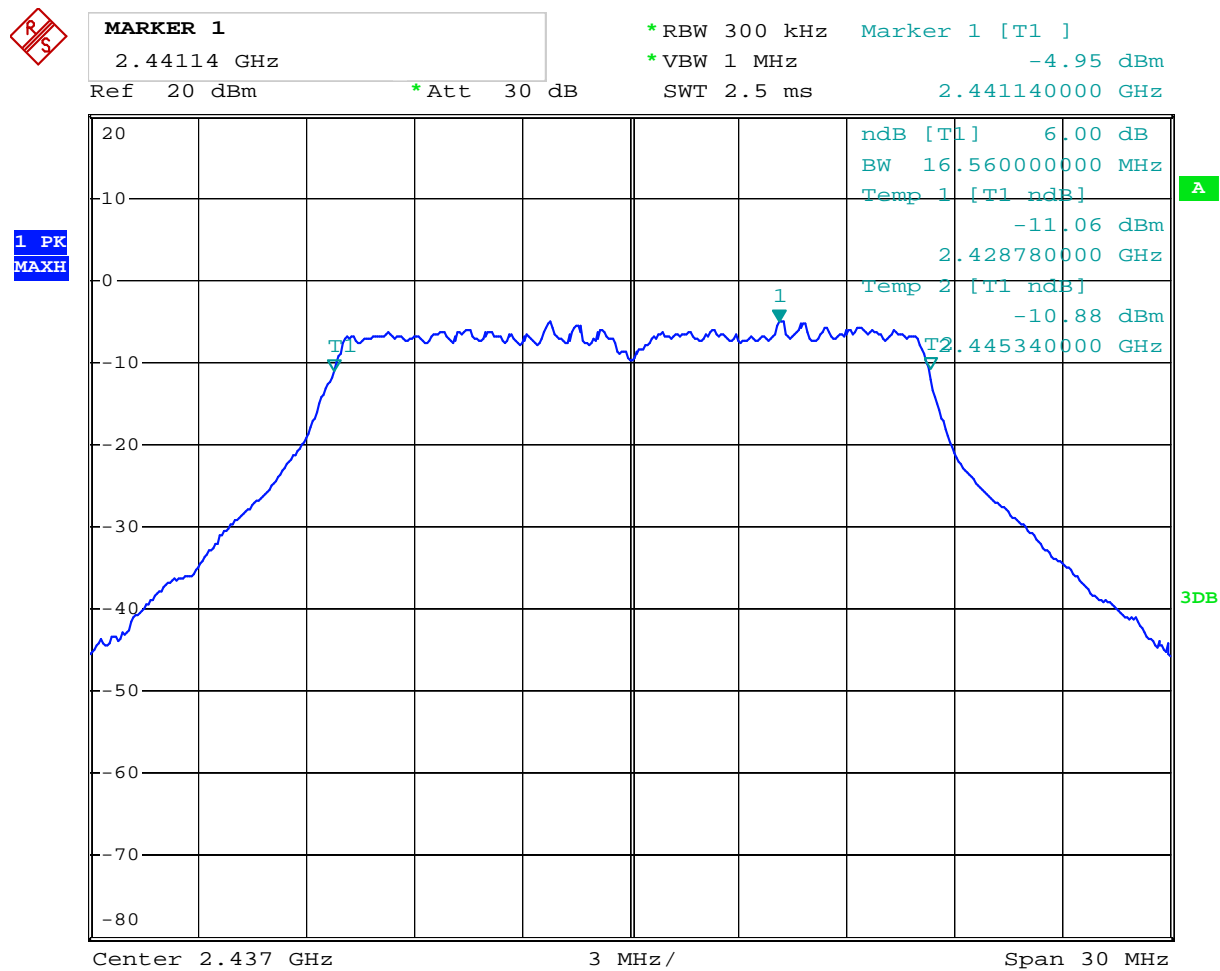


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2. 802.11g at 54Mbps of CH06

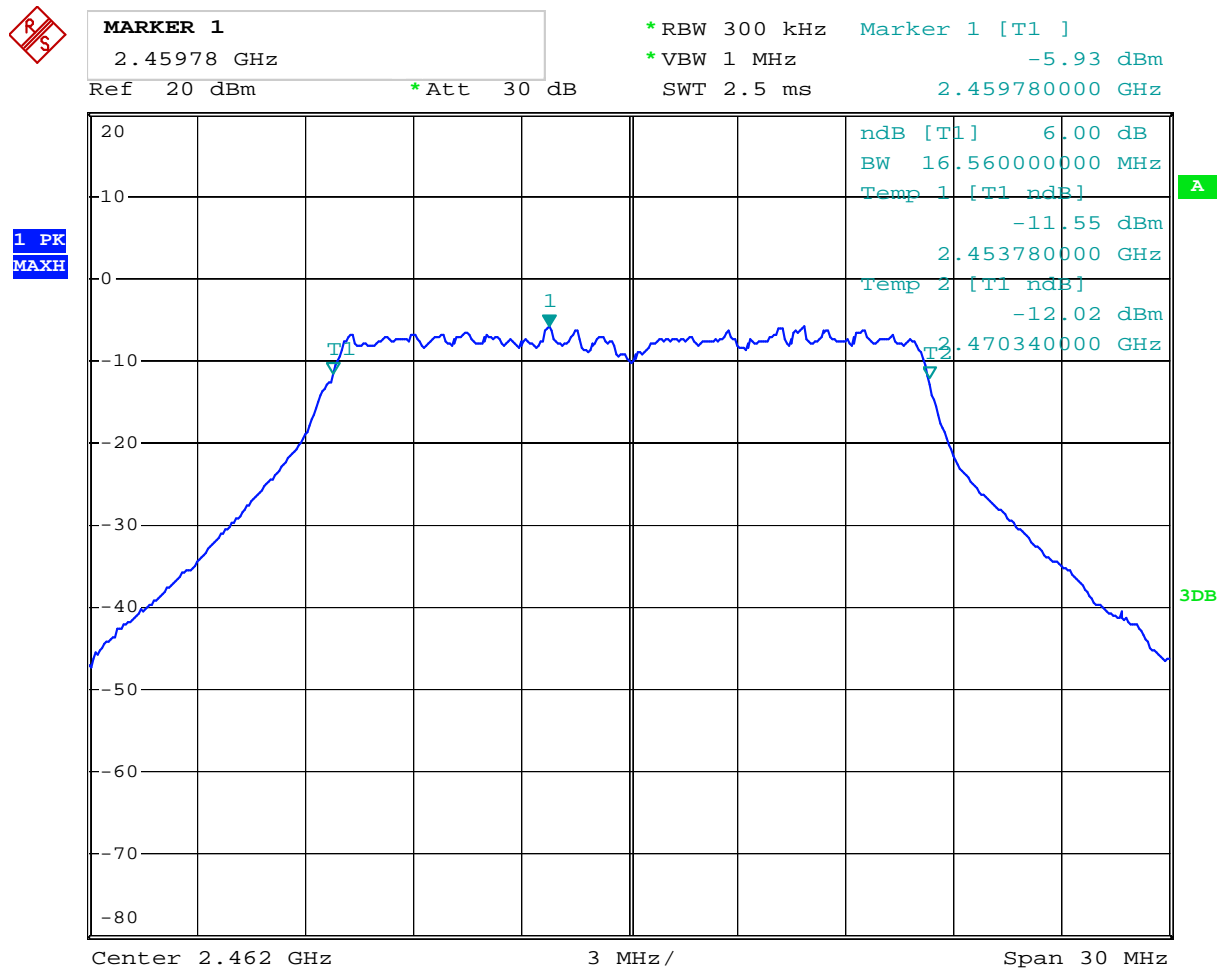


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3. 802.11g at 54Mbps of CH11



Date: 4.JUN.2012 17:52:38

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### 6dB Occupied Bandwidth

EUT	IP Camera		Model	137P	
Mode	802.11n (HT20)		Input Voltage	AC 120V	
Temperature	24 deg. C,		Humidity	56% RH	
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/Fail
1	2412	6.5	16.26	0.5	Pass
6	2437	6.5	16.26	0.5	Pass
11	2462	6.5	16.20	0.5	Pass

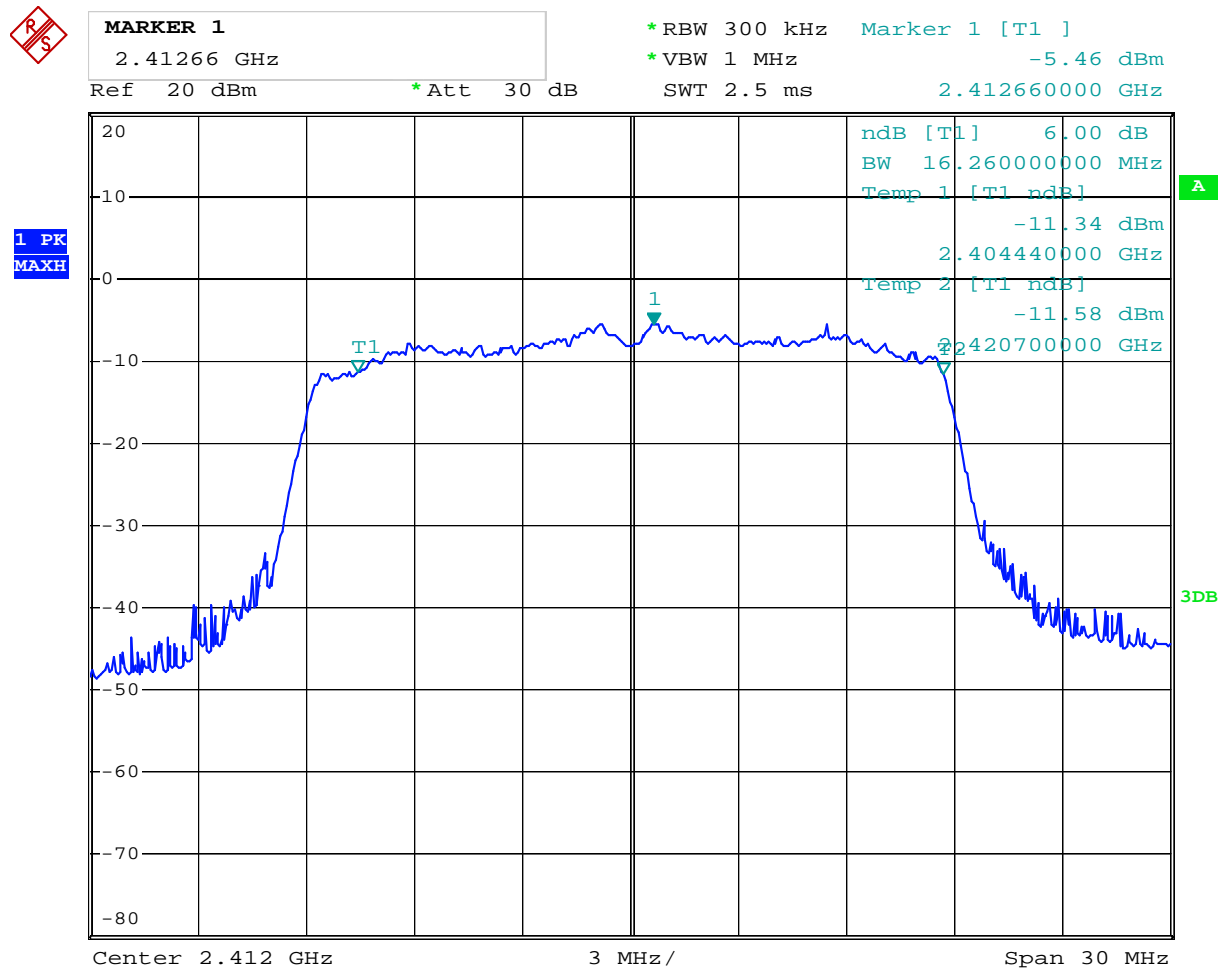
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Test Plots:  
1. 802.11n at 6.5Mbps of CH01

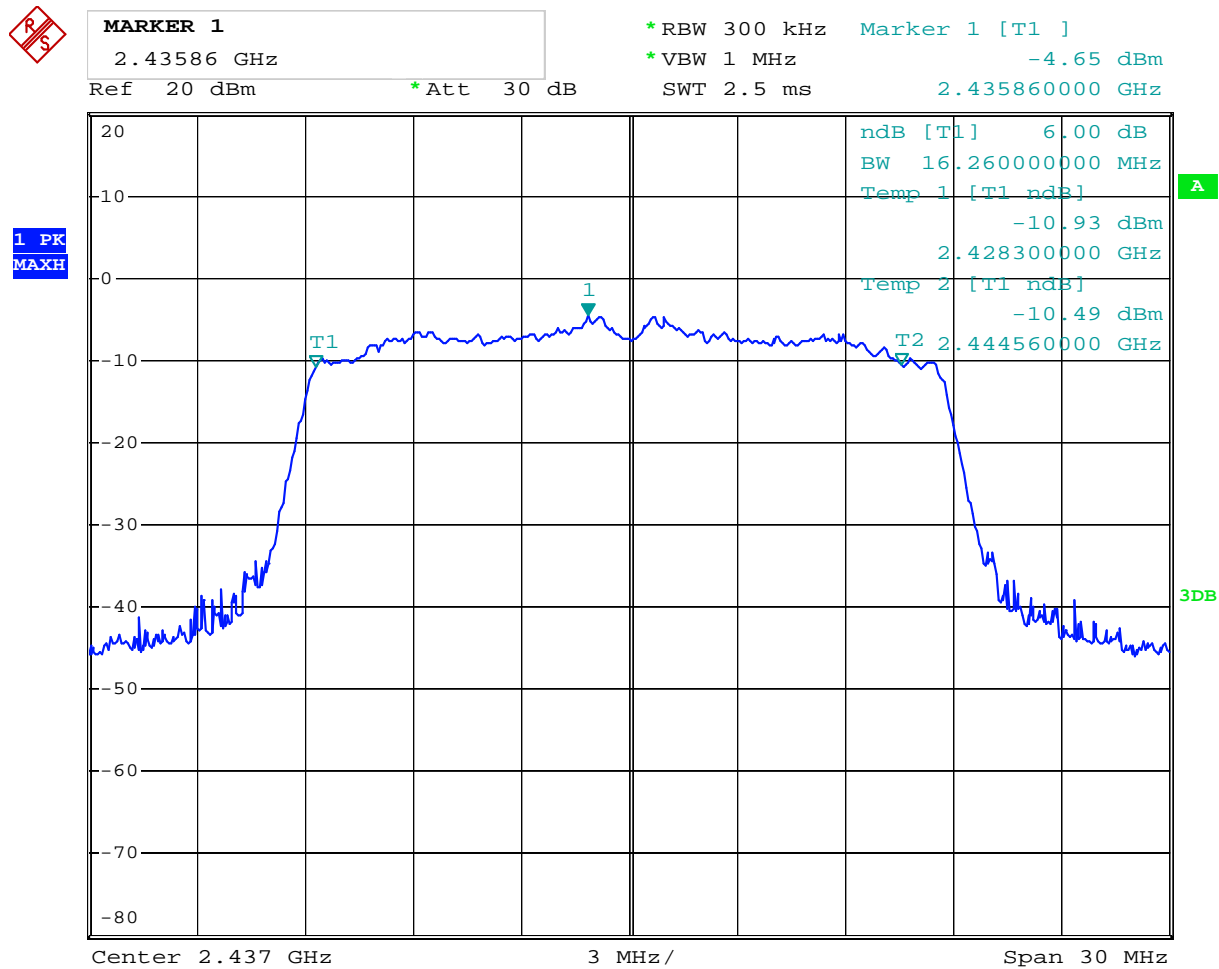


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2. 802.11n at 6.5Mbps of CH06

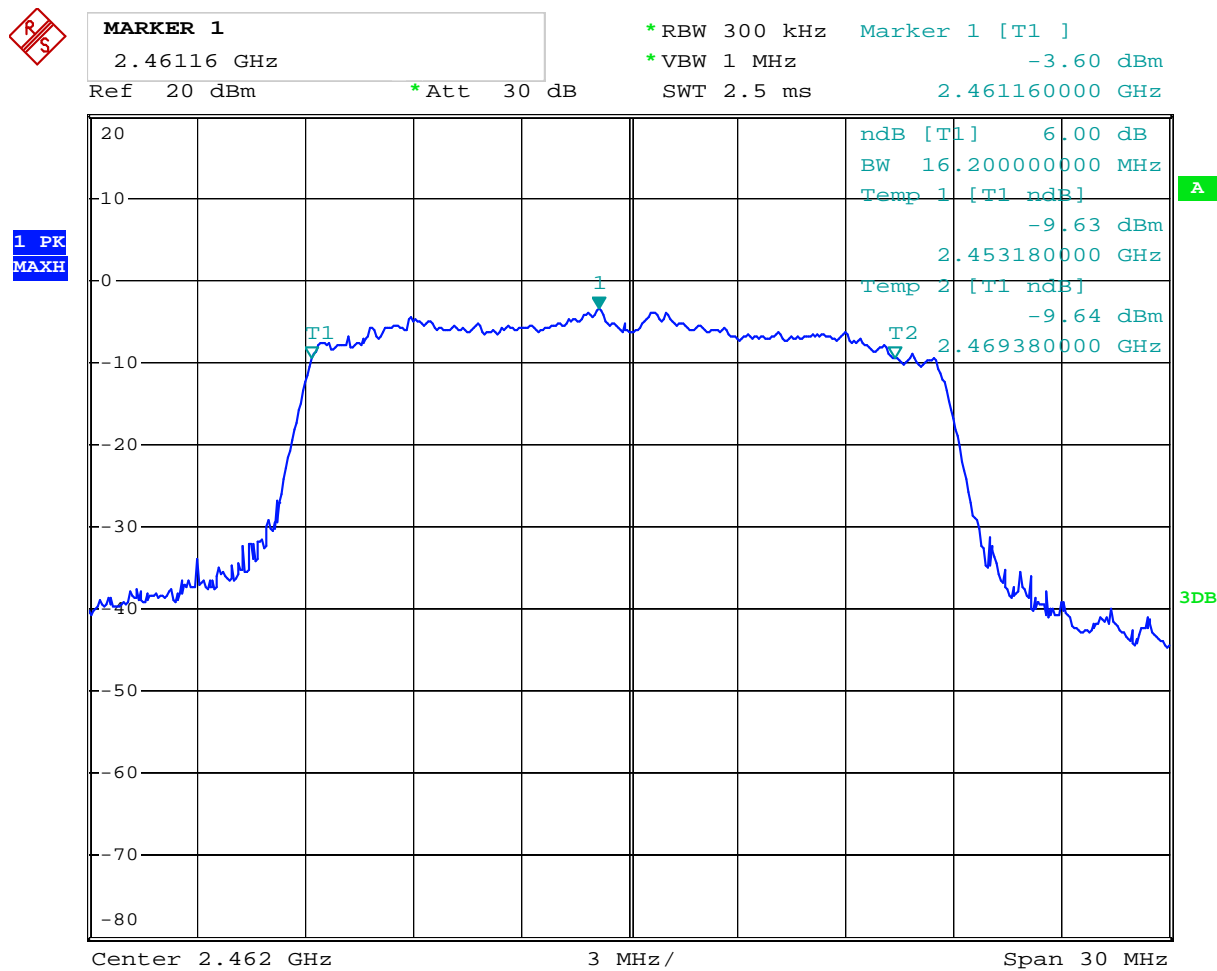


Date: 4.JUN.2012 18:32:31

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3. 802.11n at 6.5Mbps of CH11



Date: 4.JUN.2012 18:41:20

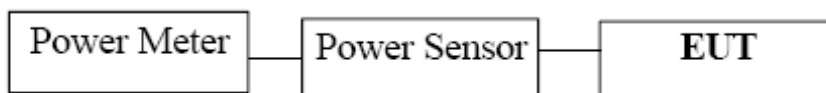
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## 8. Maximum Peak Output Power

### 8.1 Test Setup



### 8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

### 8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector ( conducted measurement ) while EUT was operating in transmit mode at the appropriate centre frequency.

**Note: the peak power was measured**

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#### 8.4 Test Results

EUT	IP Camera		Model	137P
Mode	802.11b		Input Voltage	See Below
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	19.36	30	Pass
6	2437	19.58	30	Pass
11	2462	19.55	30	Pass

Note: 1. At final test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

$$\text{Peak Power Output} = \text{Peak Power Reading} + \text{Cable loss} + \text{Attenuator}$$

3. The worse case was recorded

EUT	IP Camera		Model	137P
Mode	802.11g		Input Voltage	See Below
Temperature	24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	20.61	30	Pass
6	2437	20.72	30	Pass
11	2462	21.23	30	Pass

Note: 1. At final test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

$$\text{Peak Power Output} = \text{Peak Power Reading} + \text{Cable loss} + \text{Attenuator}$$

3. The worse case was recorded

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EUT		IP Camera		Model	137P
Mode		802.11n (HT20)		Input Voltage	See Below
Temperature		24 deg. C,		Humidity	56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail	
1	2412	18.86	30	Pass	
6	2437	18.29	30	Pass	
11	2462	19.08	30	Pass	

Note: 1. At final test to get the worst-case emission at 6.5Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

$$\text{Peak Power Output} = \text{Peak Power Reading} + \text{Cable loss} + \text{Attenuator}$$

3. The worse case was recorded

The report refers only to the sample tested and does not apply to the bulk.

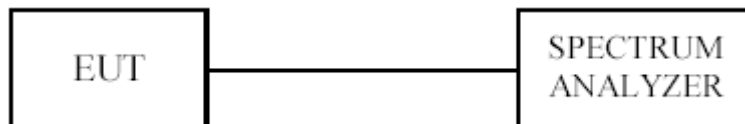
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## 9. Power Spectral Density Measurement

### 9.1 Test Setup



### 9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

### 9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 100 kHz.
3. Set the VBW  $\geq$  300 kHz.
4. Set the span to 5-30 % greater than the EBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
10. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(3\text{ kHz}/100\text{kHz} = 15.2\text{ dB})$ .
11. The resulting peak PSD level must be  $\leq 8\text{ dBm}$ .

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#### 9.4 Test Result

EUT		IP Camera		Model		137P	
Mode		802.11b		Input Voltage		AC 120V	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Channel Frequency (MHz)		Final RF Power Level in 3kHz BW (dBm)		Maximum Limit (dBm)		Pass/ Fail
11Mbps							
1	2412		-18.11		8		Pass
6	2437		-17.98		8		Pass
11	2462		-17.72		8		Pass

**Note: 11Mbps was the worse case**

EUT		IP Camera		Model		137P	
Mode		802.11g		Input Voltage		AC 120V	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Channel Frequency (MHz)		Final RF Power Level in 3kHz BW (dBm)		Maximum Limit (dBm)		Pass/ Fail
54Mbps							
1	2412		-27.23		8		Pass
6	2437		-20.49		8		Pass
11	2462		-27.18		8		Pass

**Note: 54Mbps was the worse case**

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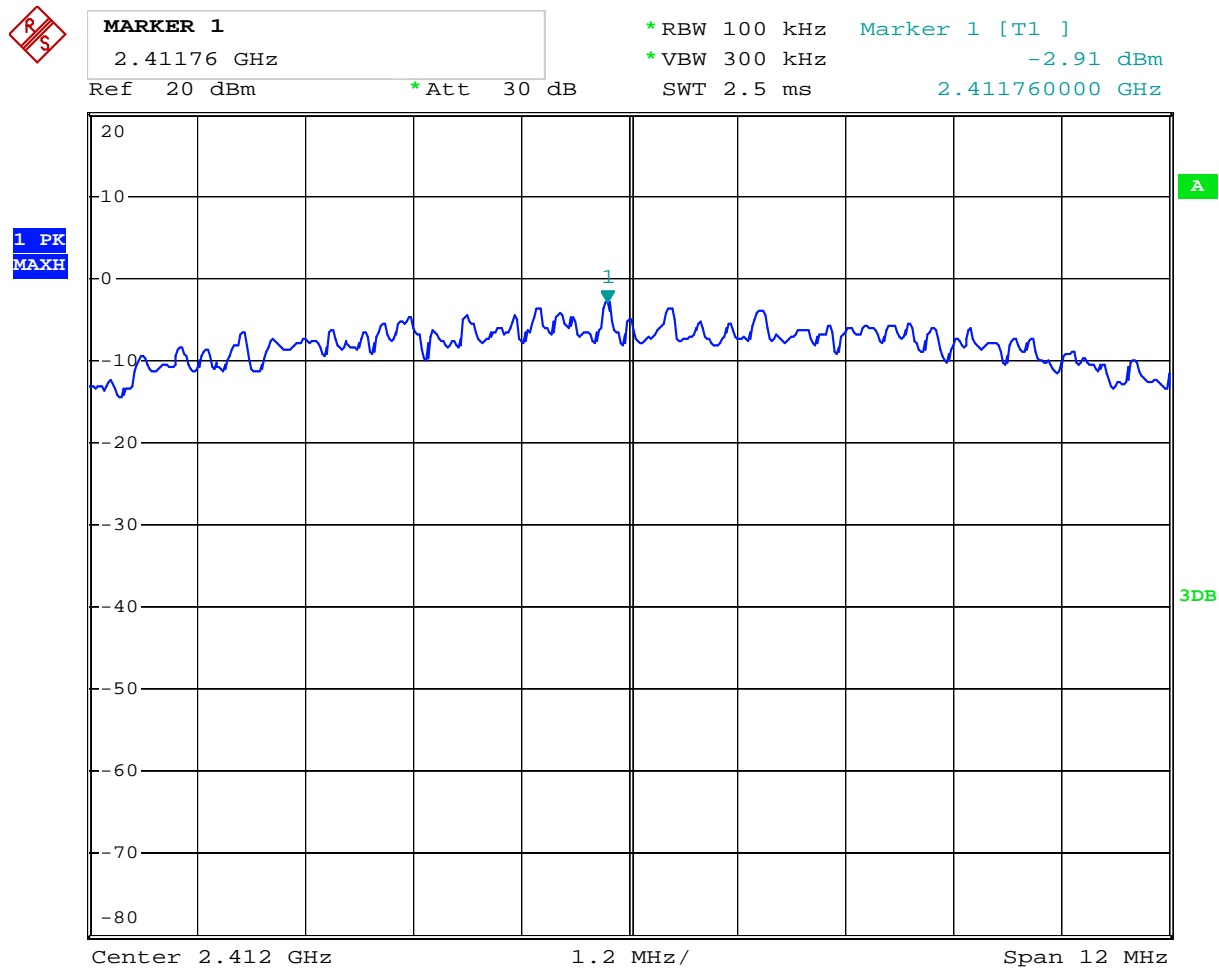
EUT		IP Camera		Model		137P	
Mode		802.11n (HT20)		Input Voltage		AC 120V	
Temperature		24 deg. C,		Humidity		56% RH	
Channel	Channel Frequency (MHz)		Final RF Power Level in 3kHz BW (dBm)		Maximum Limit (dBm)		Pass/ Fail
6.5Mbps							
1	2412		-23.54		8		Pass
6	2437		-23.00		8		Pass
11	2462		-22.01		8		Pass

**Note: 6.5Mbps was the worse case**



9.5 Photo of Power Spectral Density Measurement

1.802.11b at 11Mbps of CH01

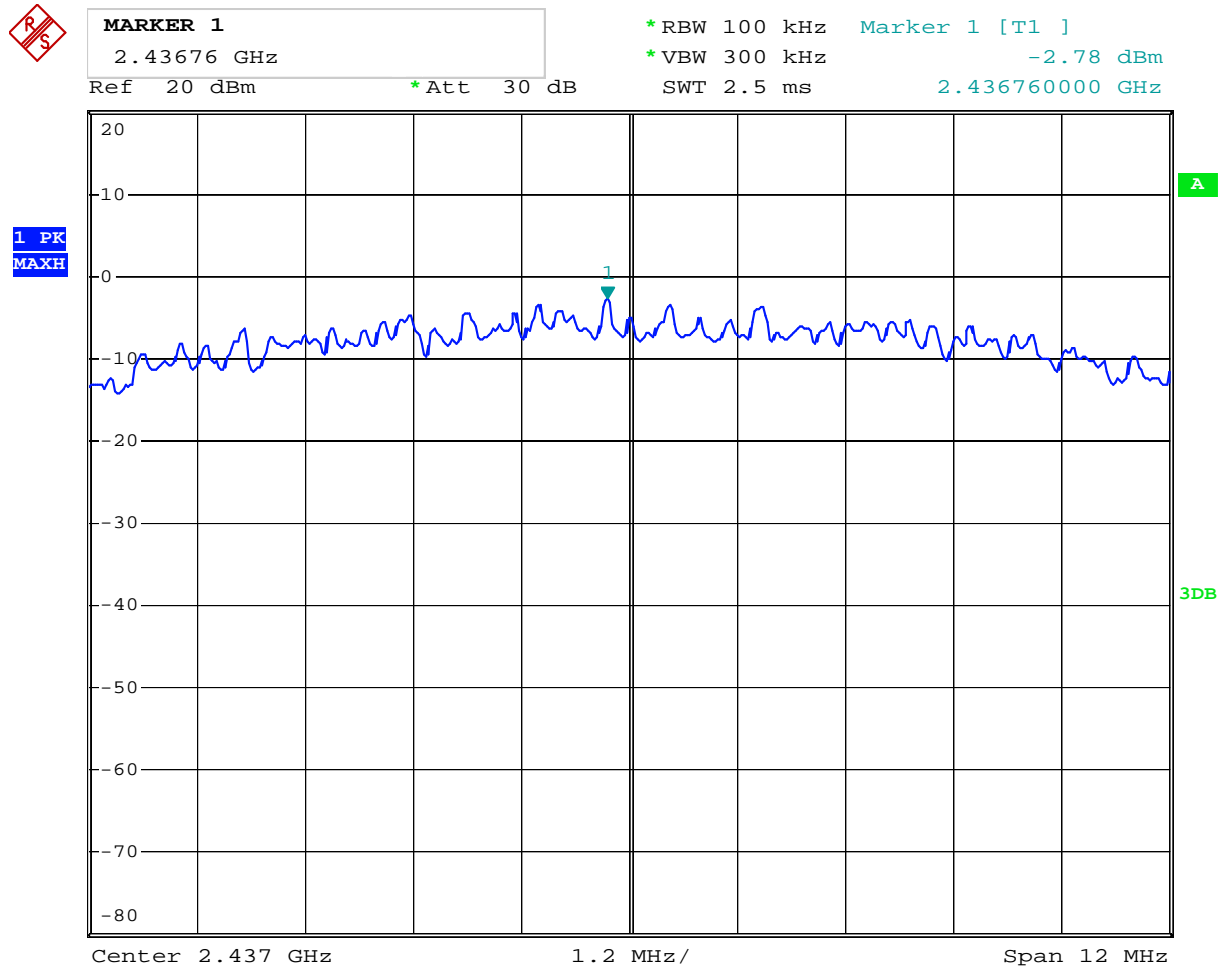


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2. 802.11b at 11Mbps at CH06



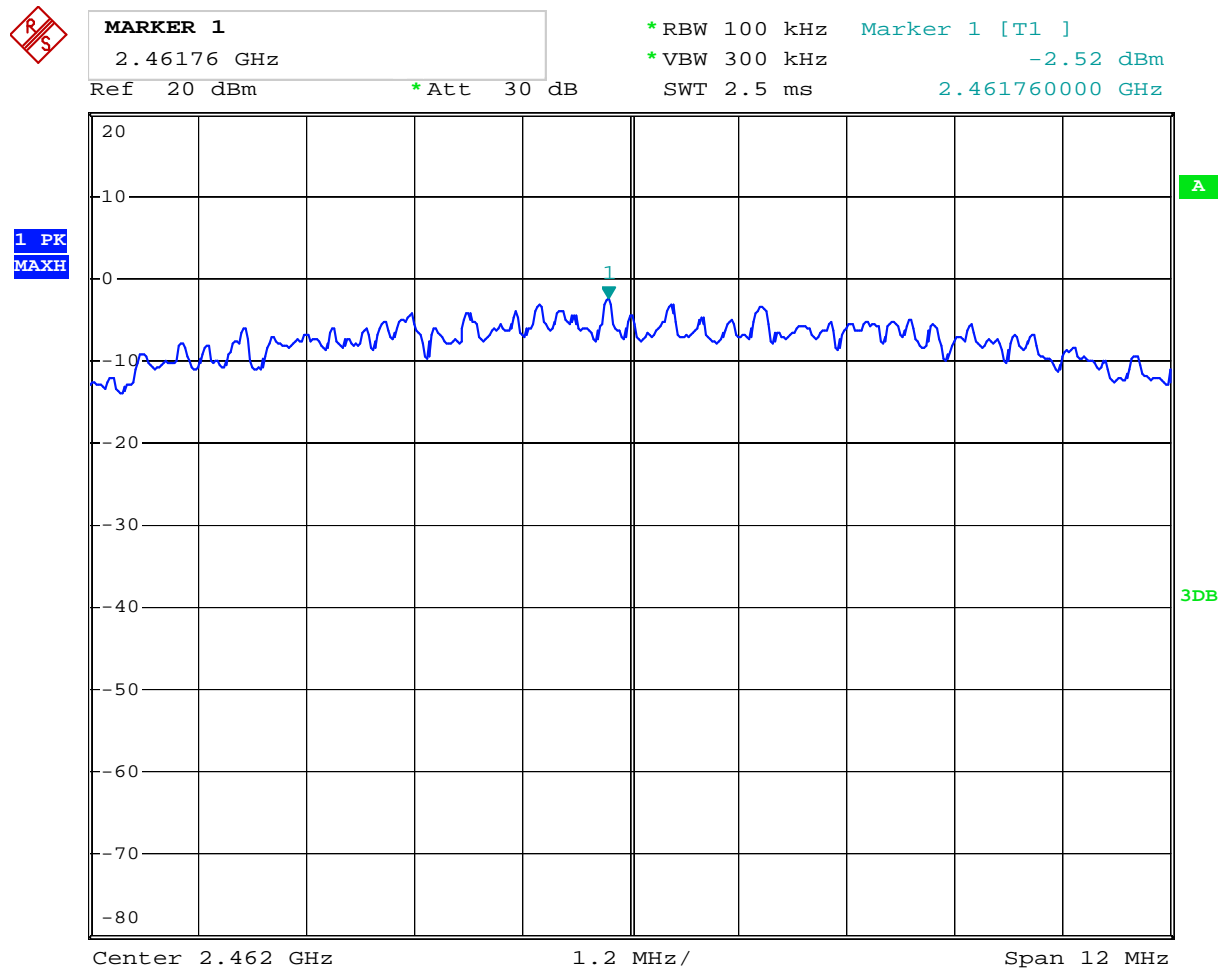
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3. 802.11b at 11Mbps of CH11

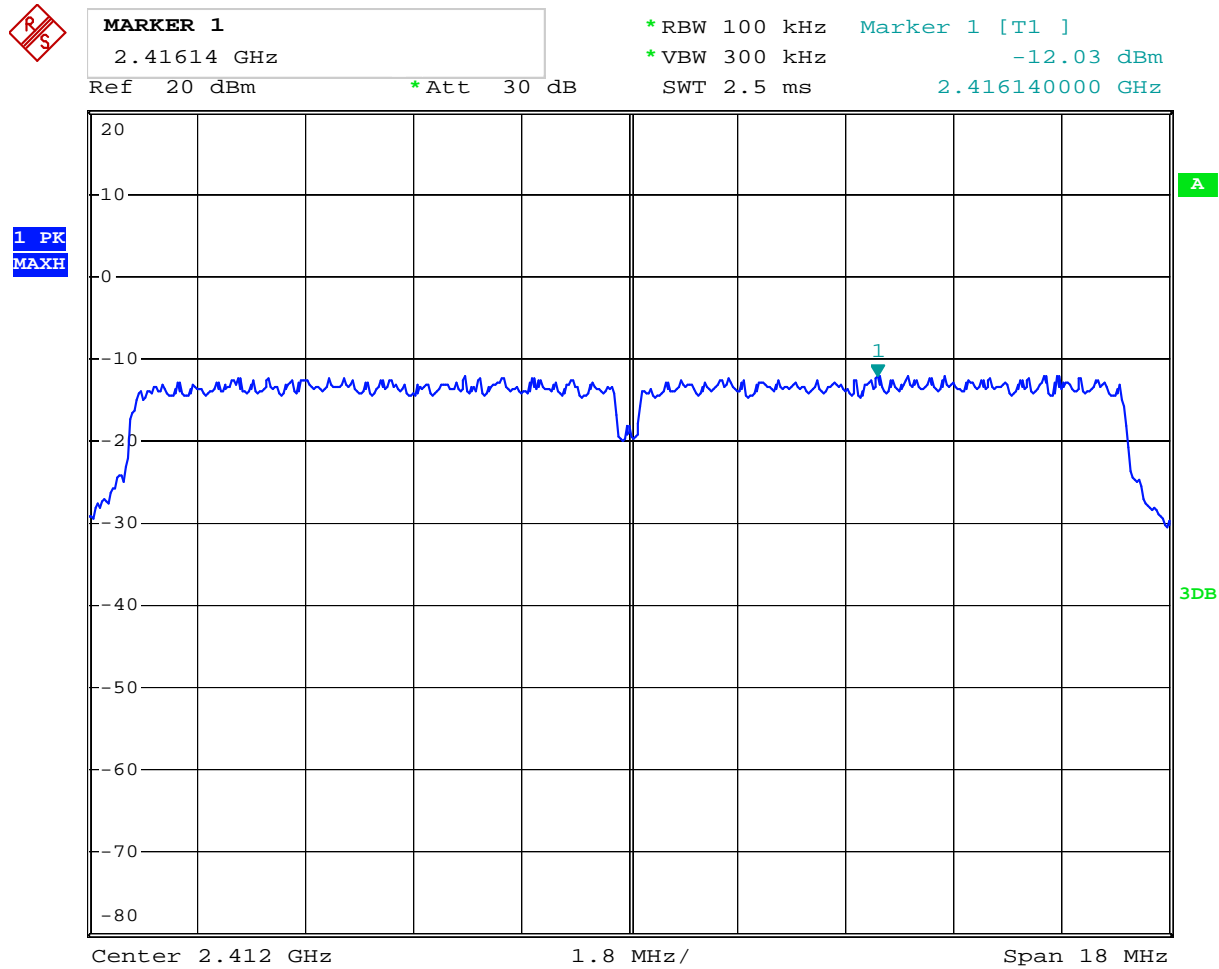


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4. 802.11g at 54Mbps of CH1

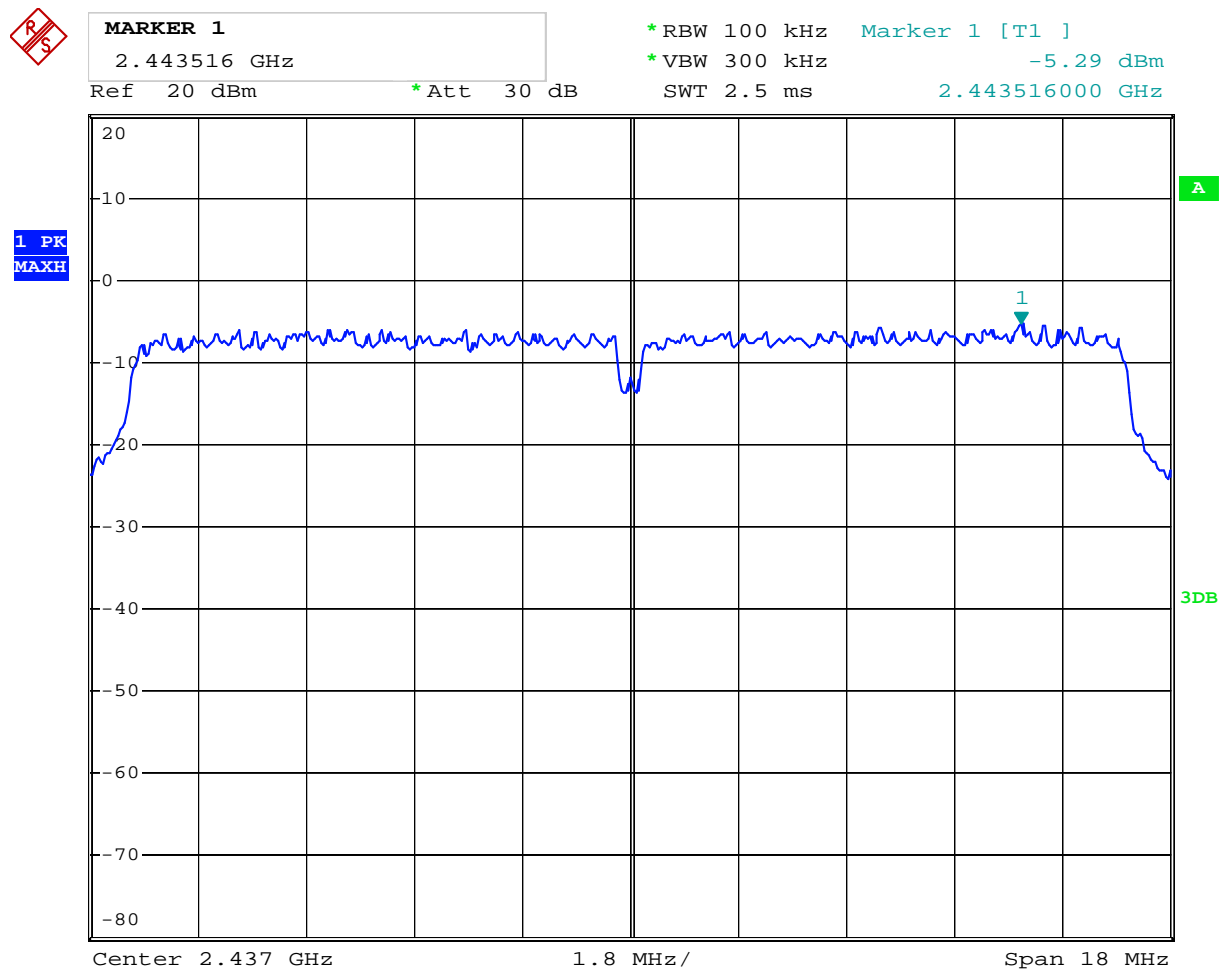


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5. 802.11g at 54Mbps of CH6

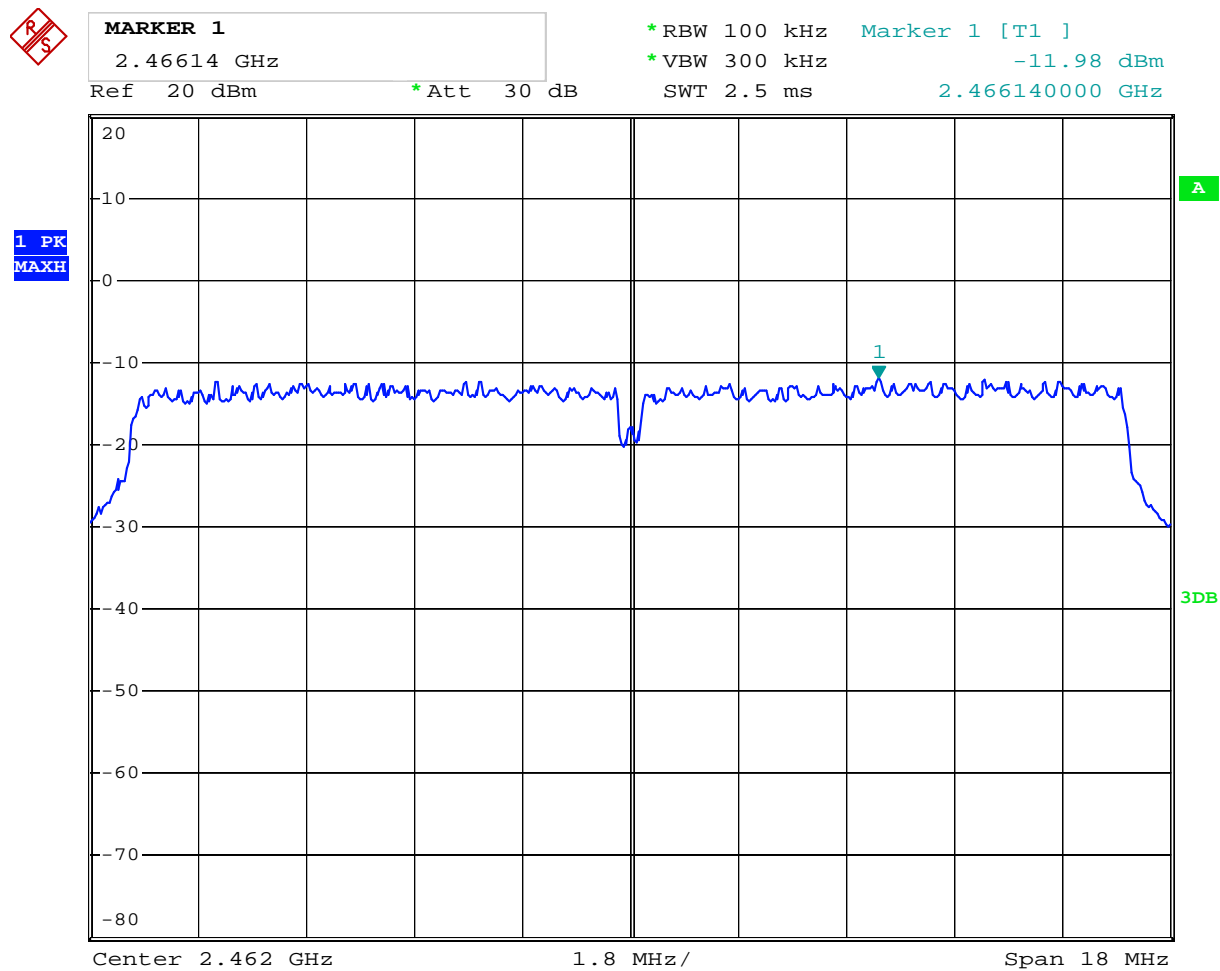


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6. 802.11g at 54Mbps of CH11

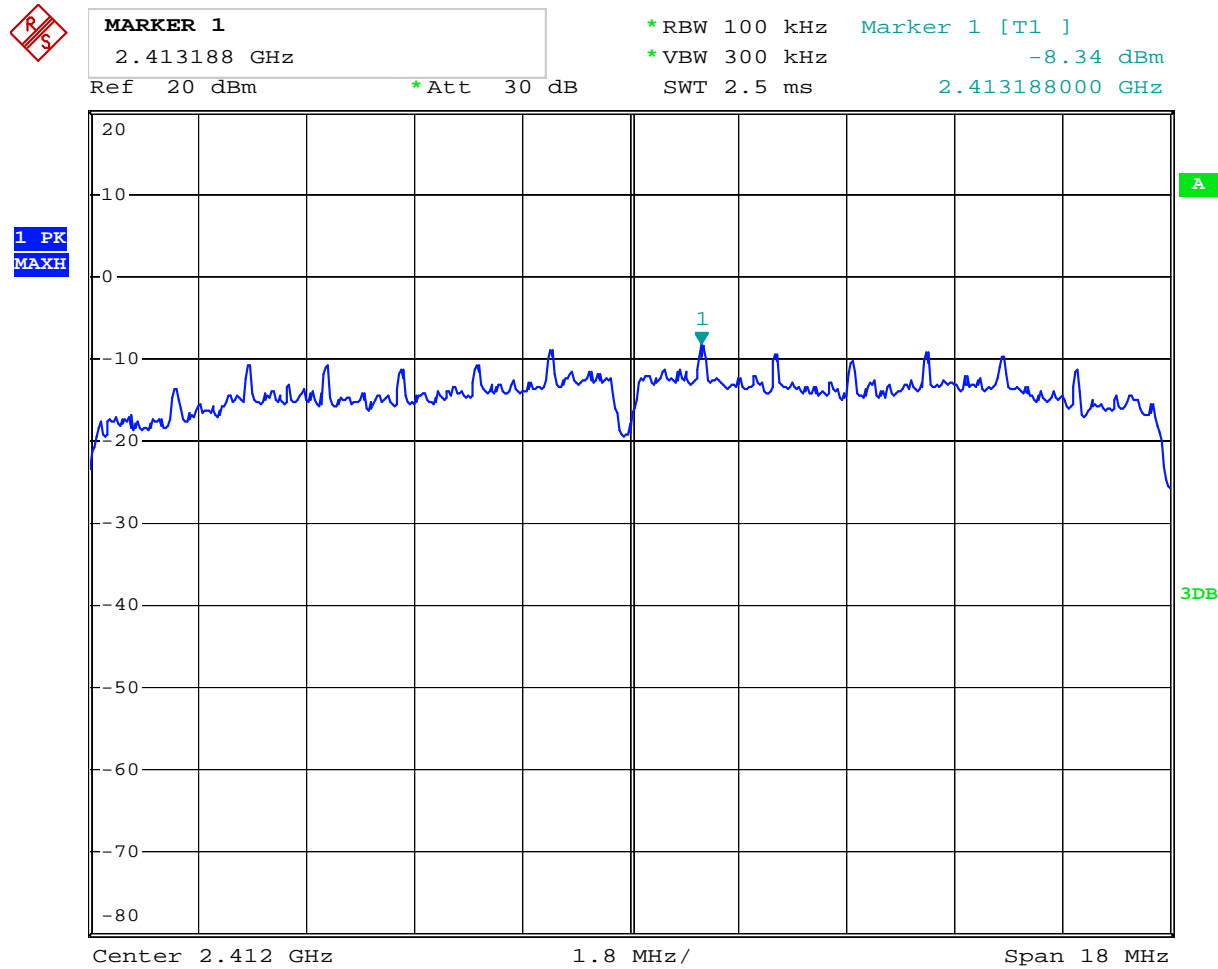


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7. 802.11g at 6.5Mbps of CH1

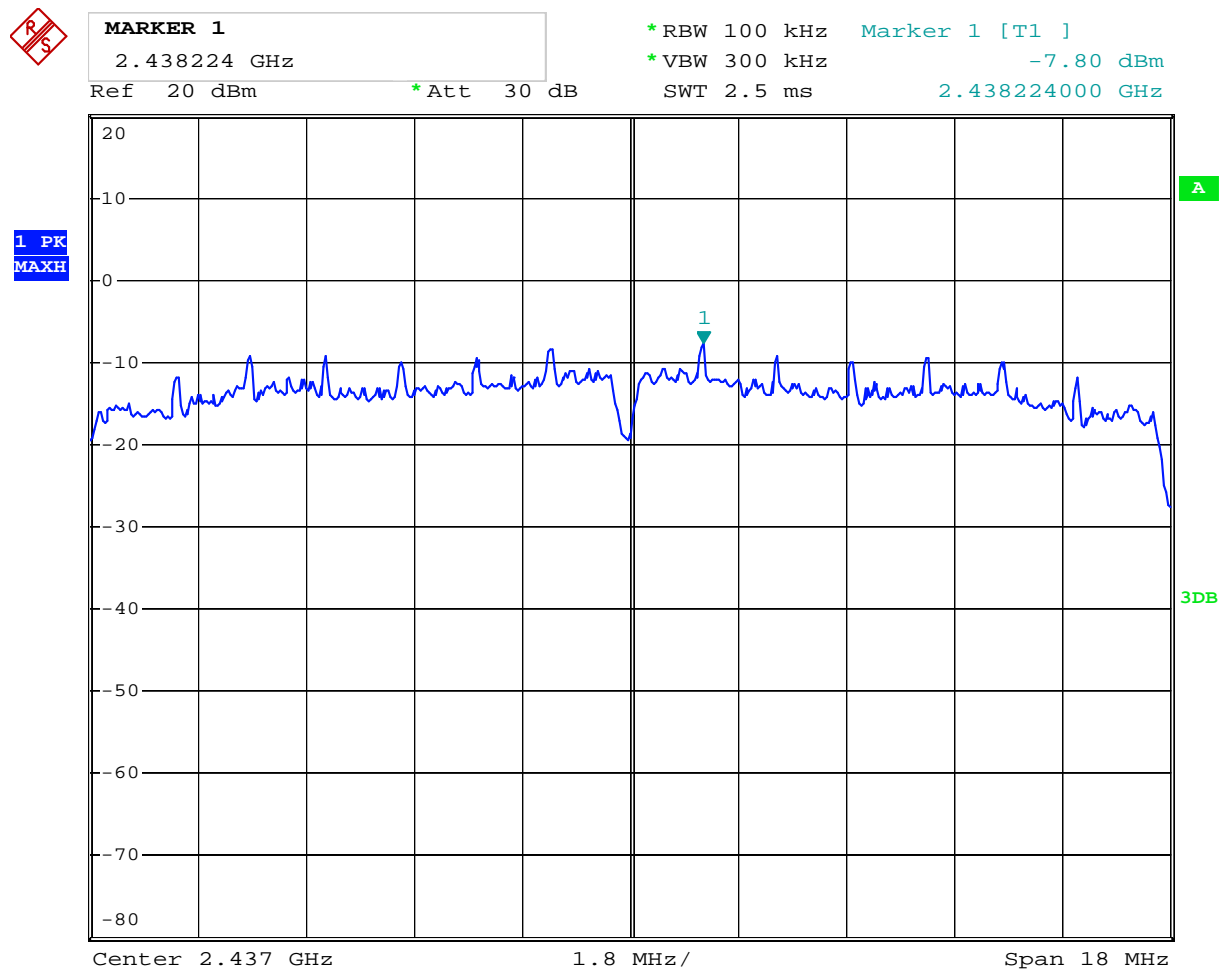


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8. 802.11g at 6.5Mbps of CH6

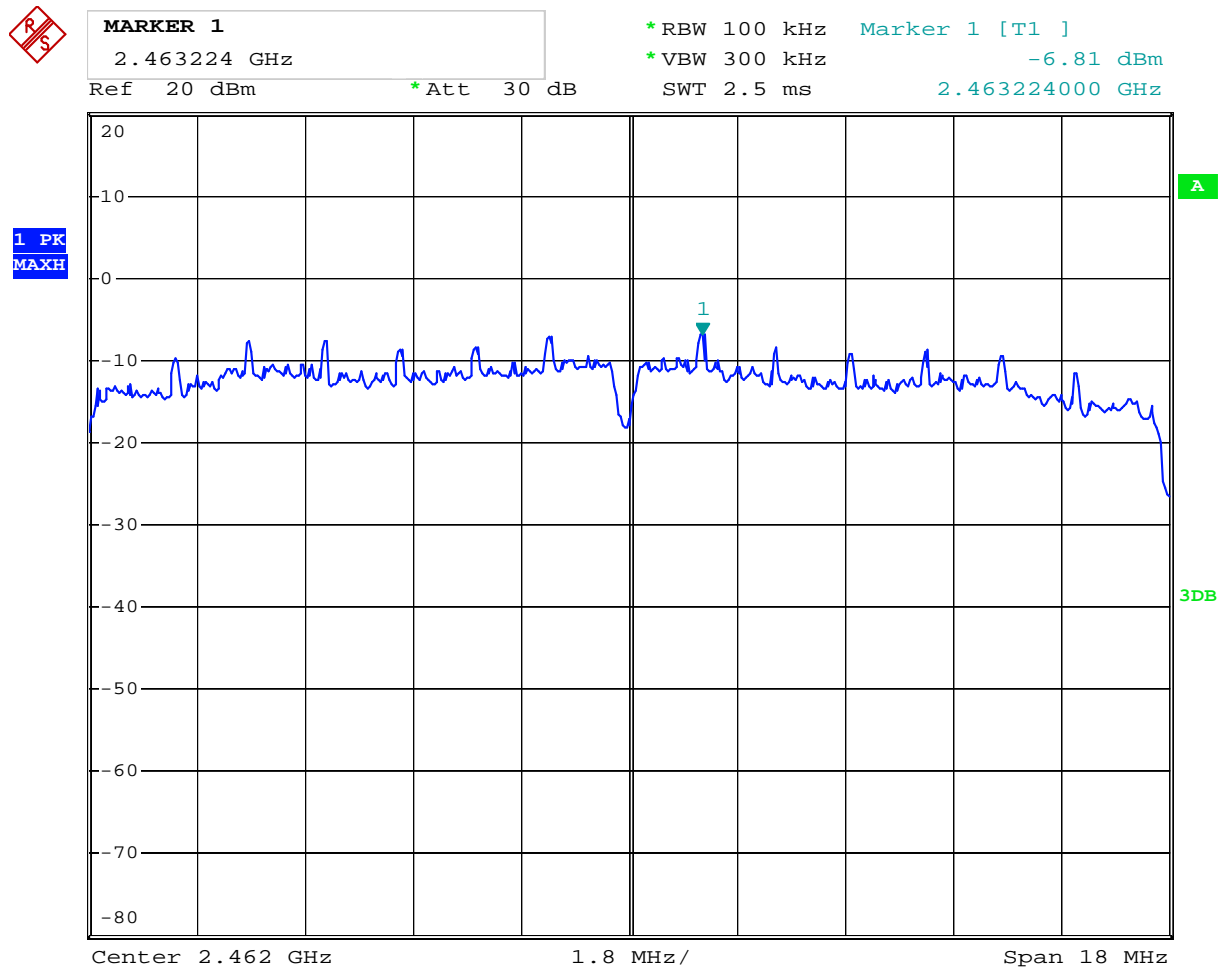


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9. 802.11g at 6.5Mbps of CH11



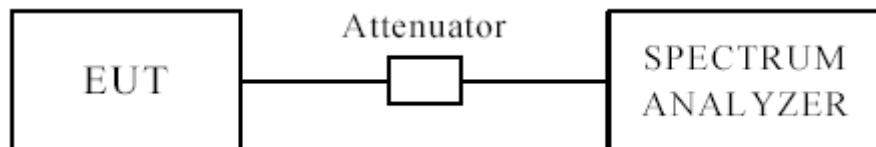
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## 10 Out of Band Measurement

### 10.1 Test Setup for band edge



**The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup**

### 10.2 Limits of Out of Band Emissions Measurement

1. Below  $-20\text{dB}$  of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

### 10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.( Peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector)

For bandage test, the spectrum set as follows: RBW=VBW=100 kHz. A conducted measurement used

### 10.4 Test Result

Please see next pages

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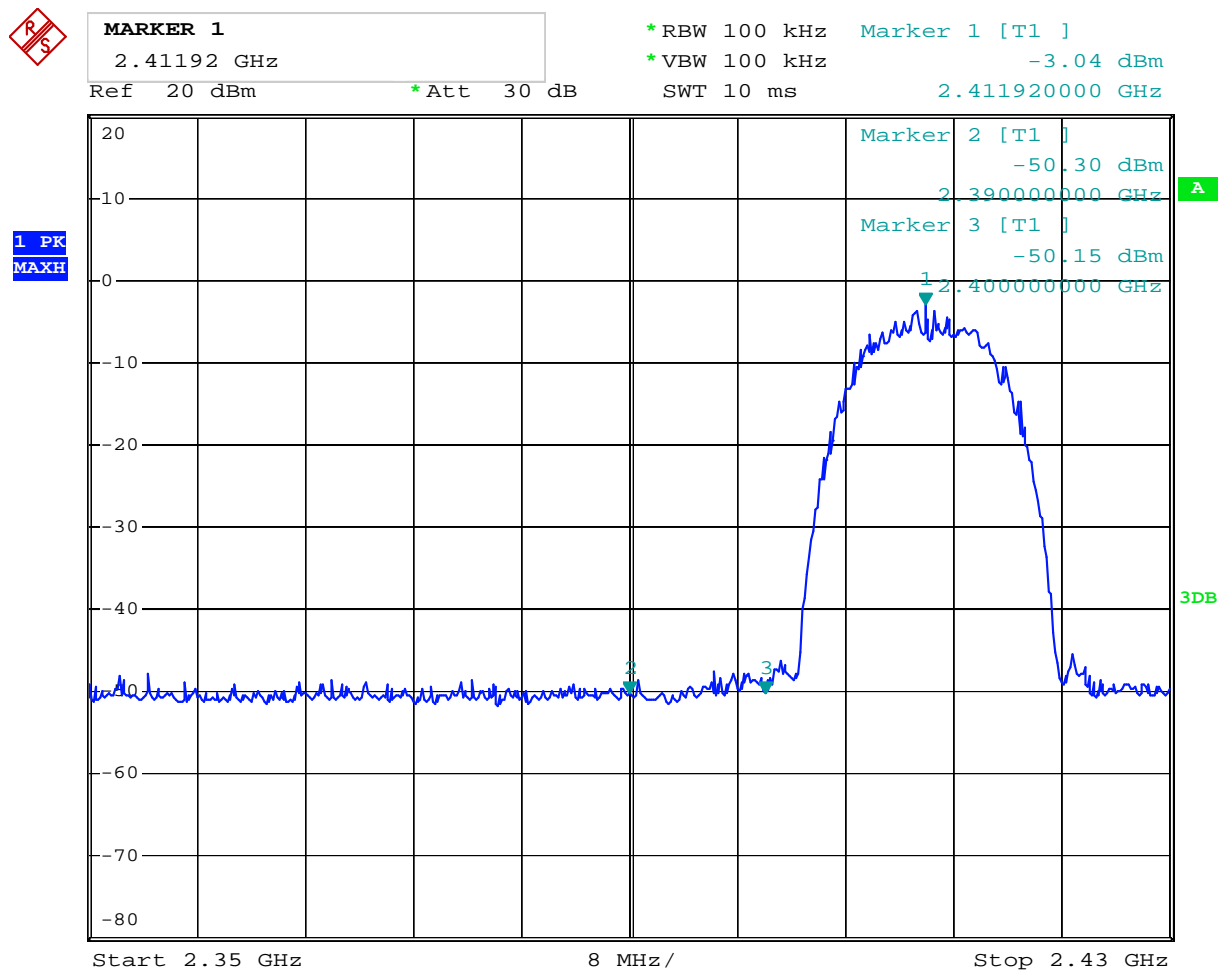
For 802.11b mode

CH01 at 11Mbps

10.4 Band-edge Measurement

Product:	IP Camera	Model:	137P
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 4.JUN.2012 16:53:55

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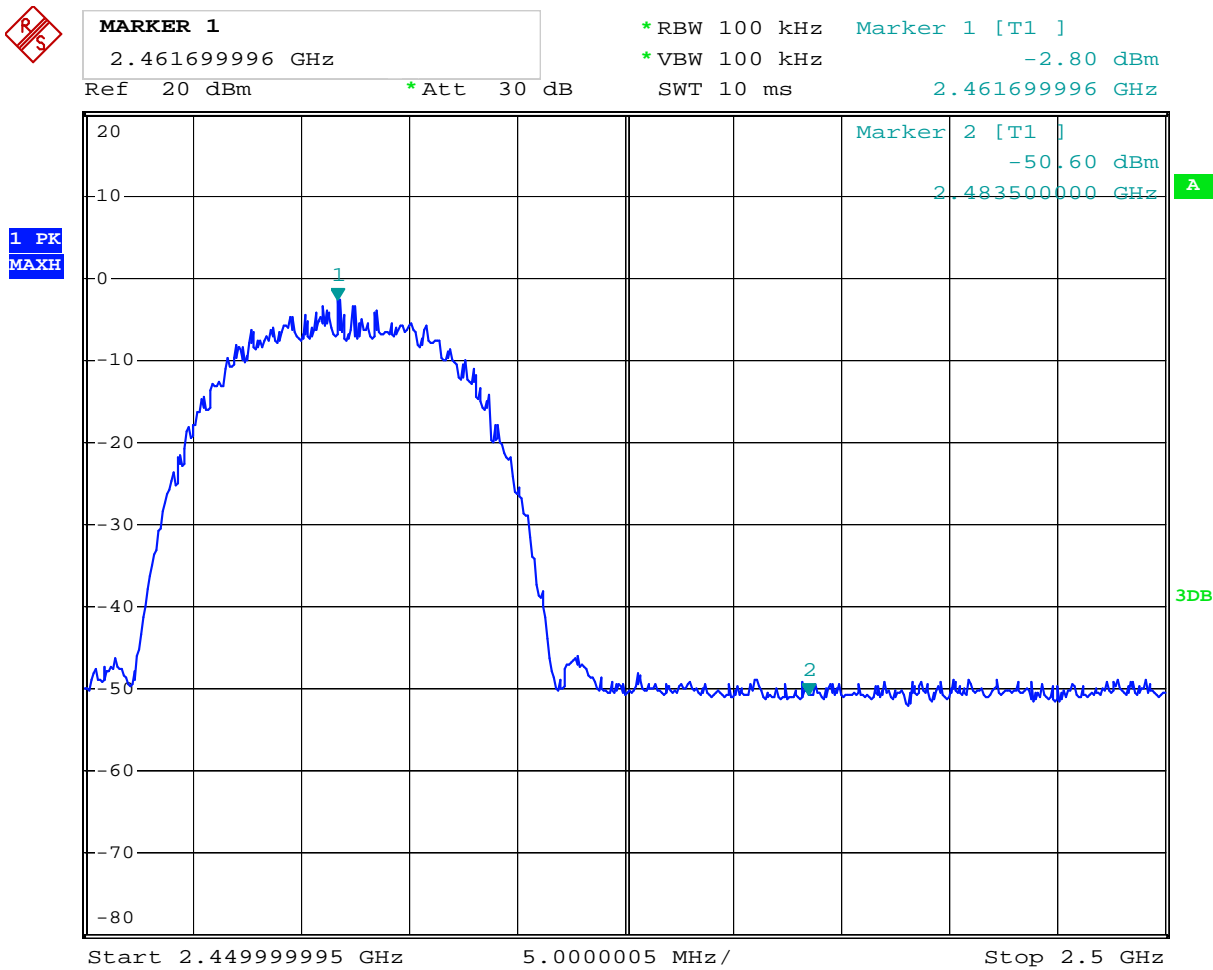


CH11 at 11Mbps

10.4 Band-edge Measurement

Product:	IP Camera	Model:	137P
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 4.JUN.2012 17:56:14

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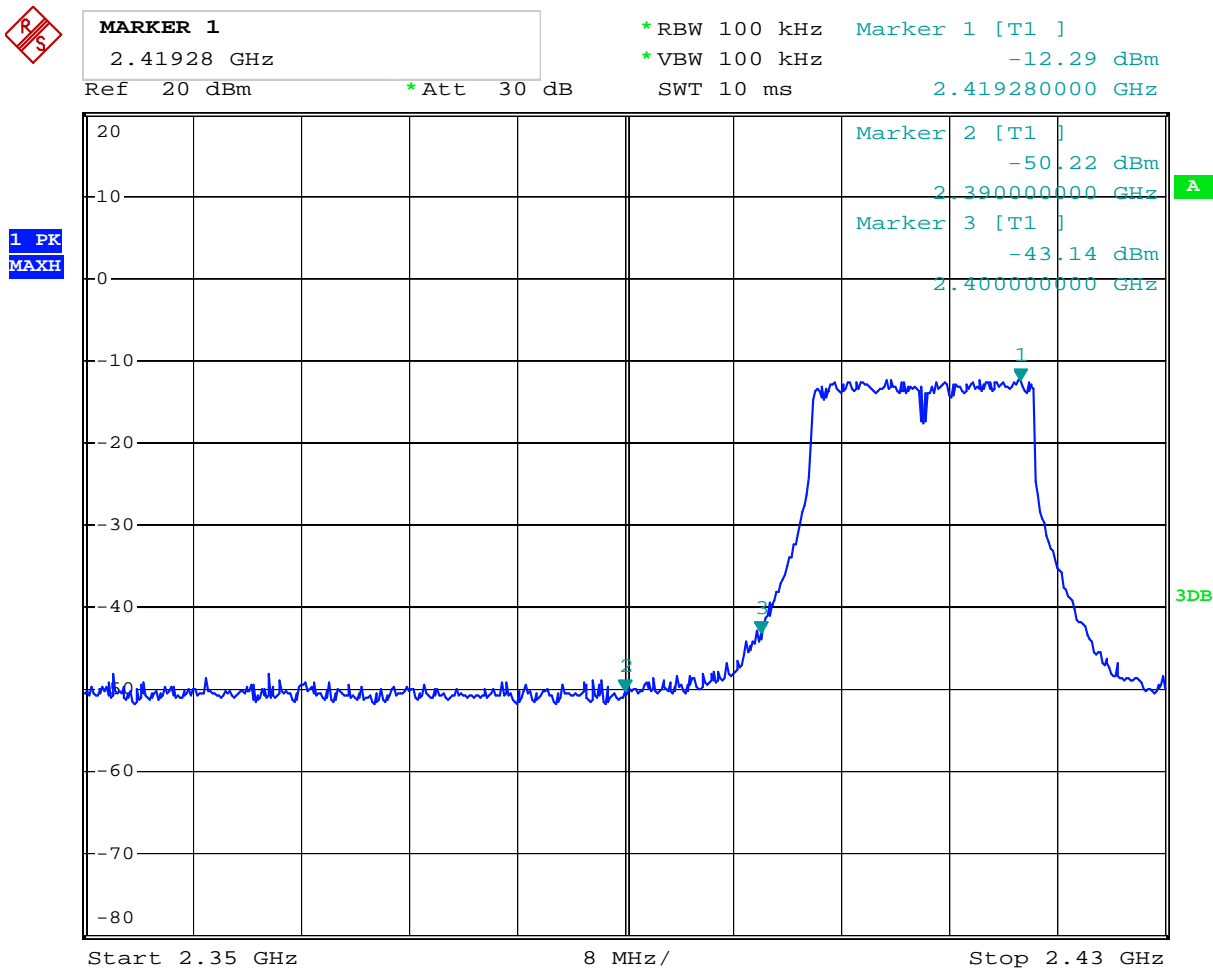
For 802.11g mode

CH01 at 54Mbps

10.4 Band-edge Measurement

Product:	IP Camera	Model:	137P
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 4.JUN.2012 16:59:22

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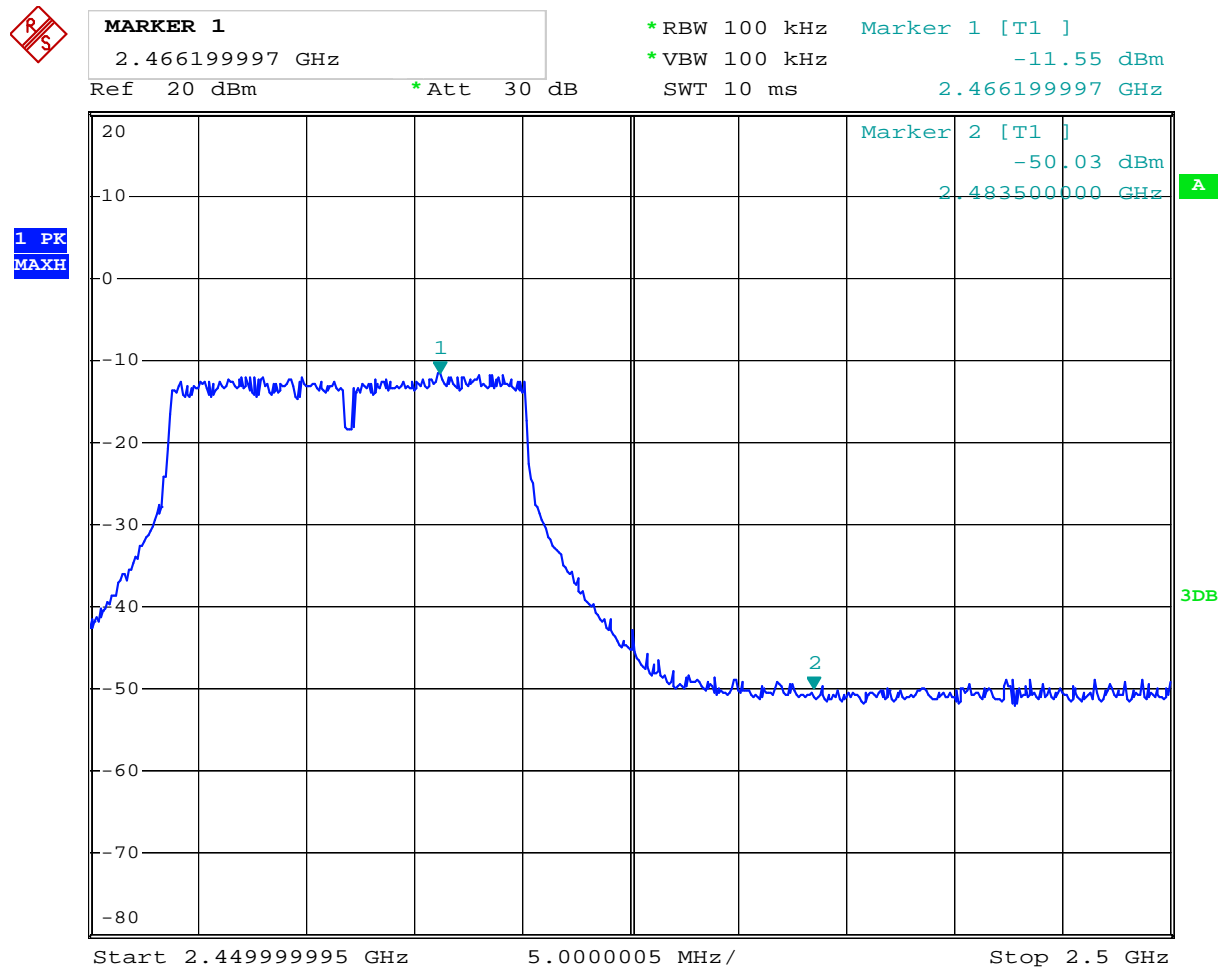


CH11 at 54Mbps

10.4 Band-edge Measurement

Product:	IP Camera	Model:	137P
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 4.JUN.2012 17:54:23

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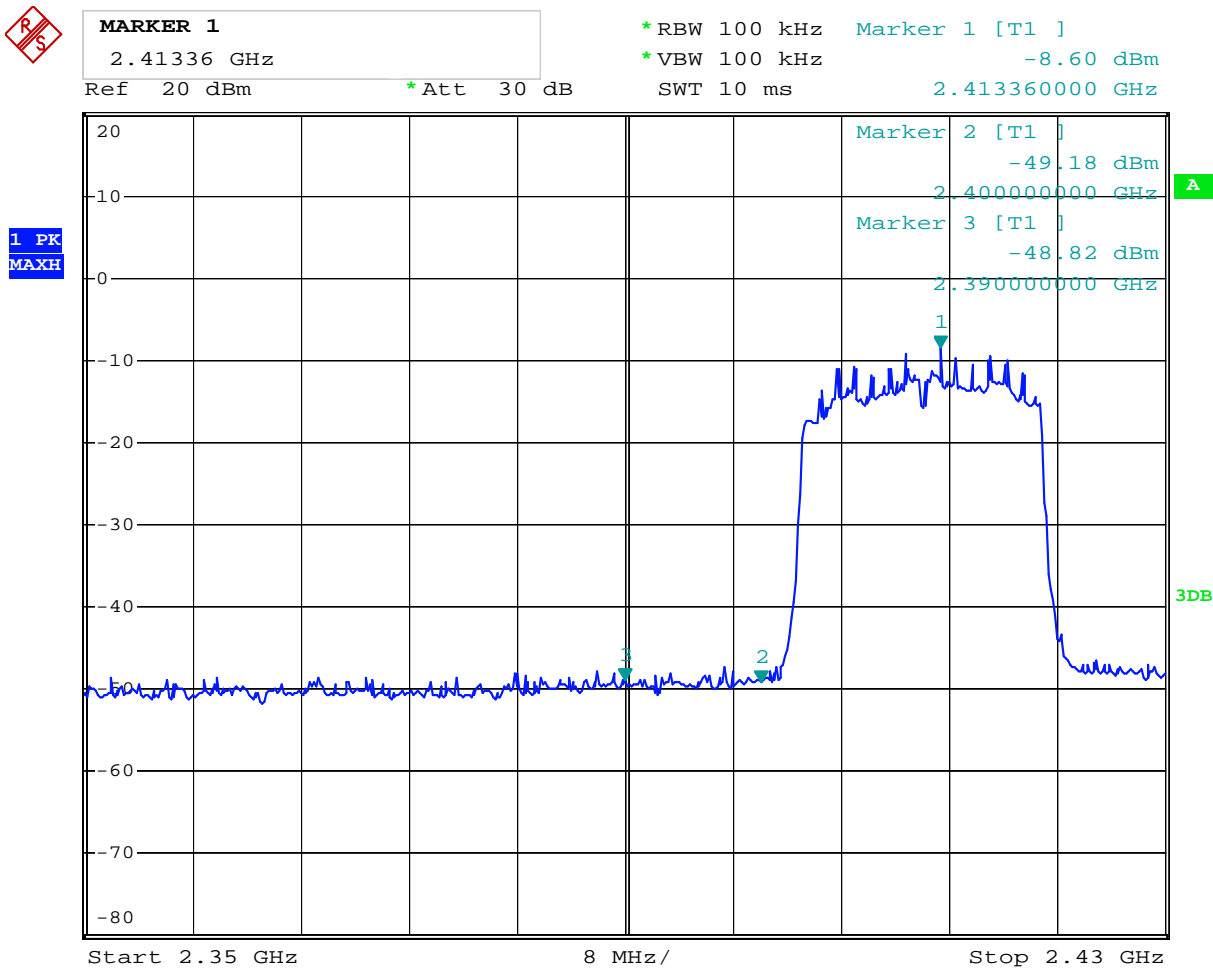
For 802.11n (HT20) mode

CH01 at 6.5Mbps

10.4 Band-edge Measurement

Product:	IP Camera	Model:	137P
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



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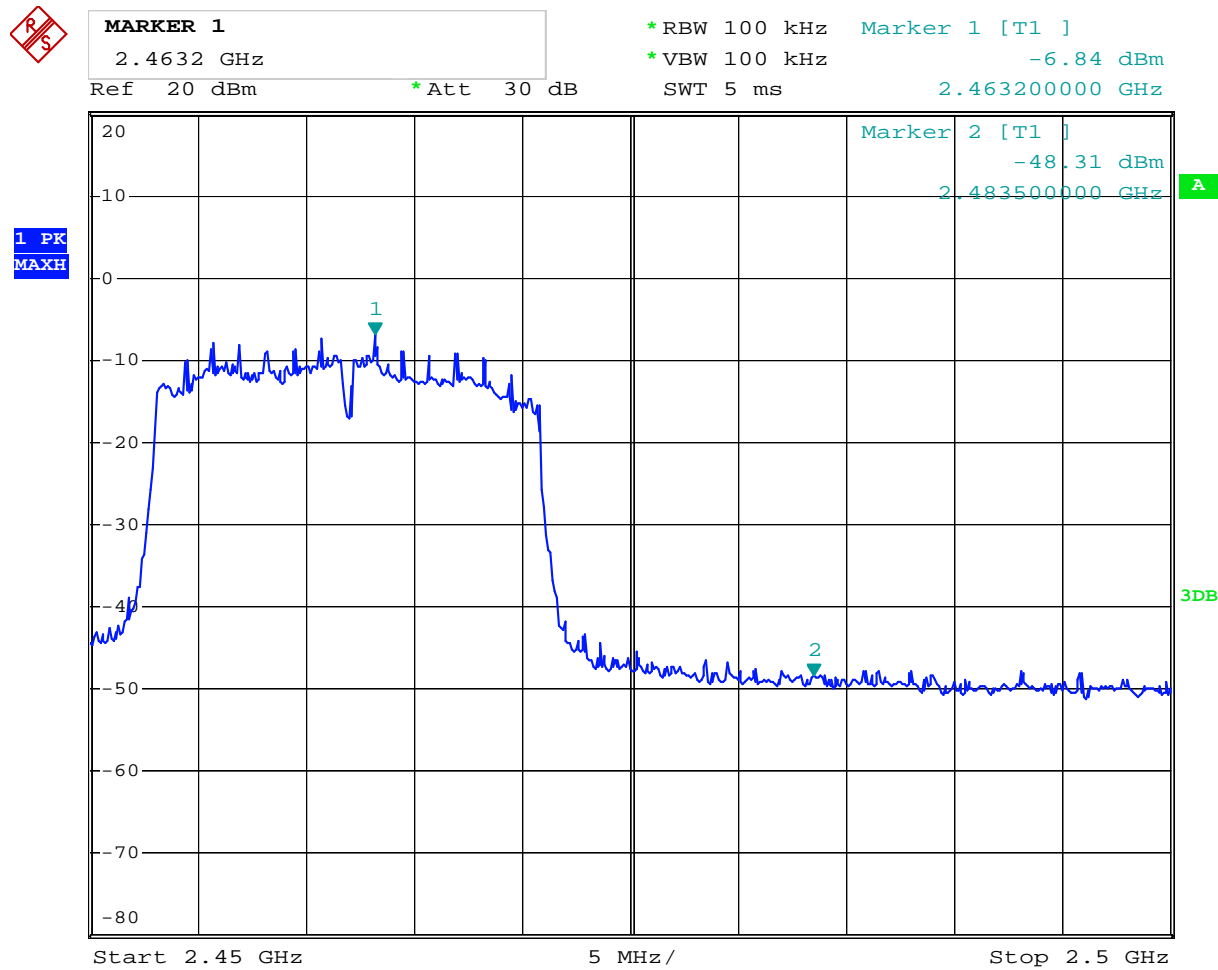


CH11 at 6.5Mbps

10.4 Band-edge Measurement

Product:	IP Camera	Model:	137P
Mode	Keeping Transmitting	Input Voltage	AC 120V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 4.JUN.2012 18:43:03

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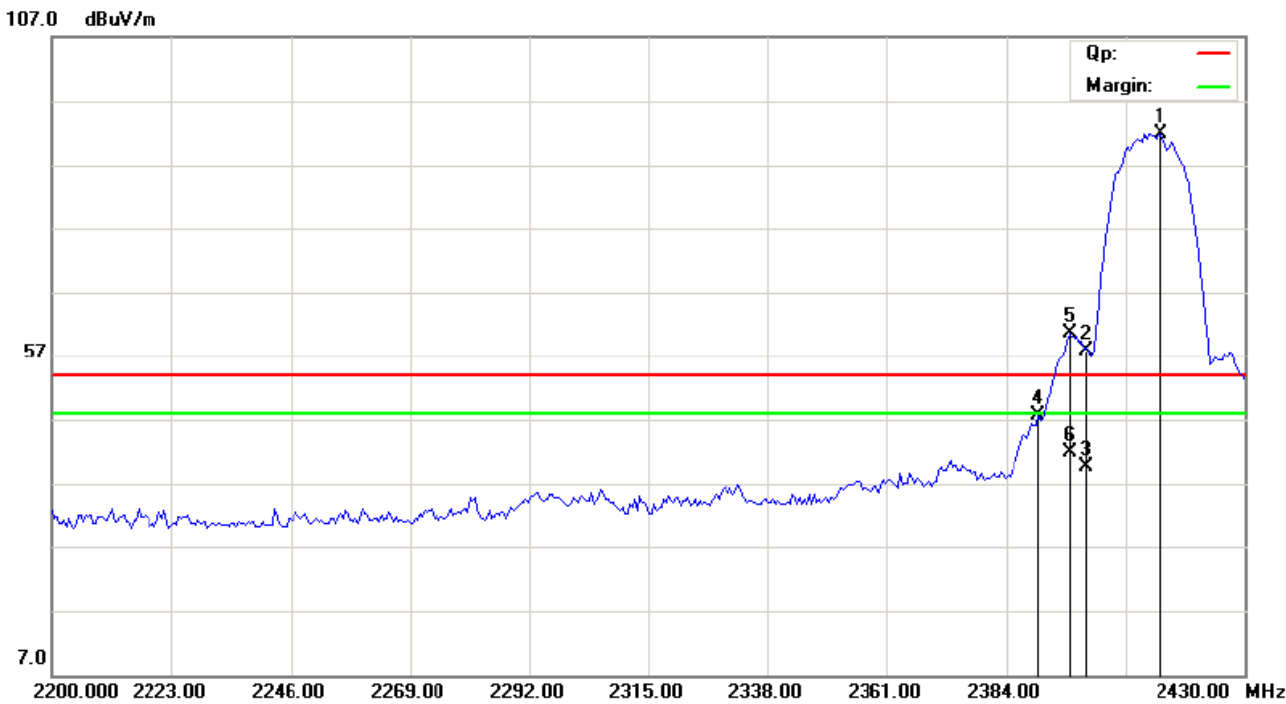


For 802.11b mode  
CH01 at 1Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBμV/m)	57.99	Limit	74(dBμV/m)
	AV (dBμV/m)	39.52		54(dBμV/m)
2390	PK (dBμV/m)	47.62	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2396.353	PK (dBμV/m)	60.51	Limit	74(dBμV/m)
	AV (dBμV/m)	41.90		54(dBμV/m)

Test Figure: Horizontal



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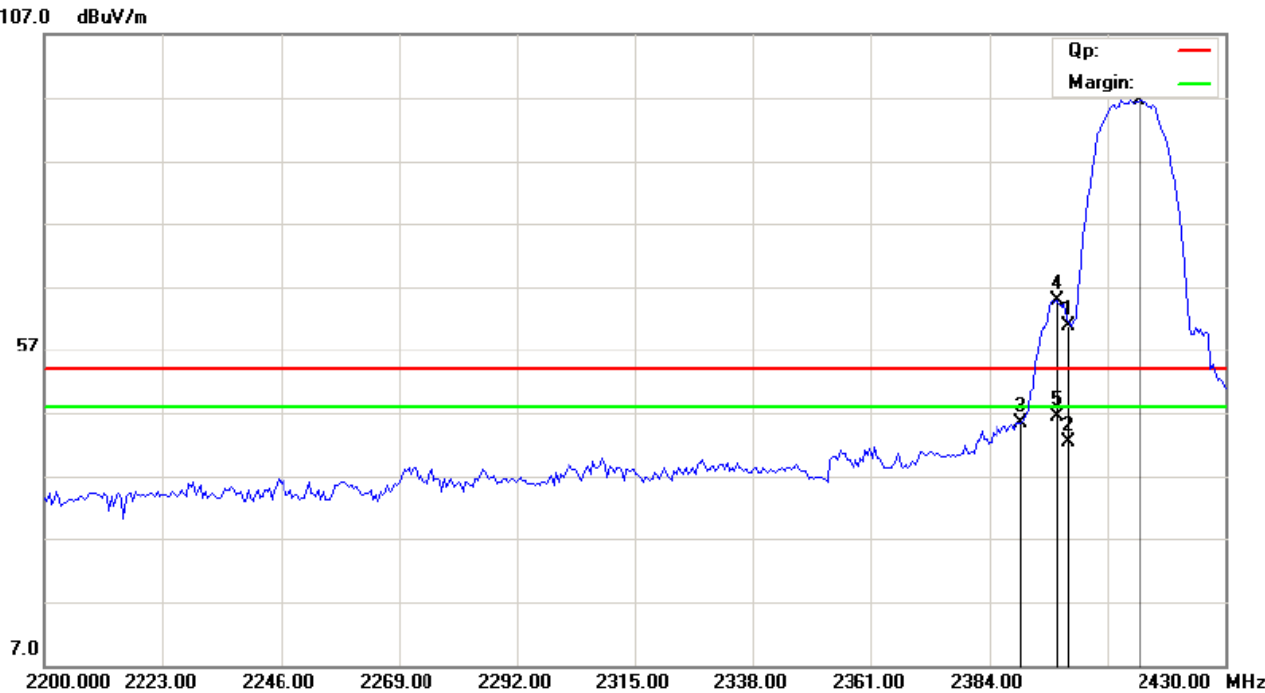


For 802.11b mode  
CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBμV/m)	60.94	Limit	74(dBμV/m)
	AV (dBμV/m)	42.45		54(dBμV/m)
2390	PK (dBμV/m)	45.48	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2397.274	PK (dBμV/m)	64.94	Limit	74(dBμV/m)
	AV (dBμV/m)	46.43		54(dBμV/m)

Test Figure: Vertical



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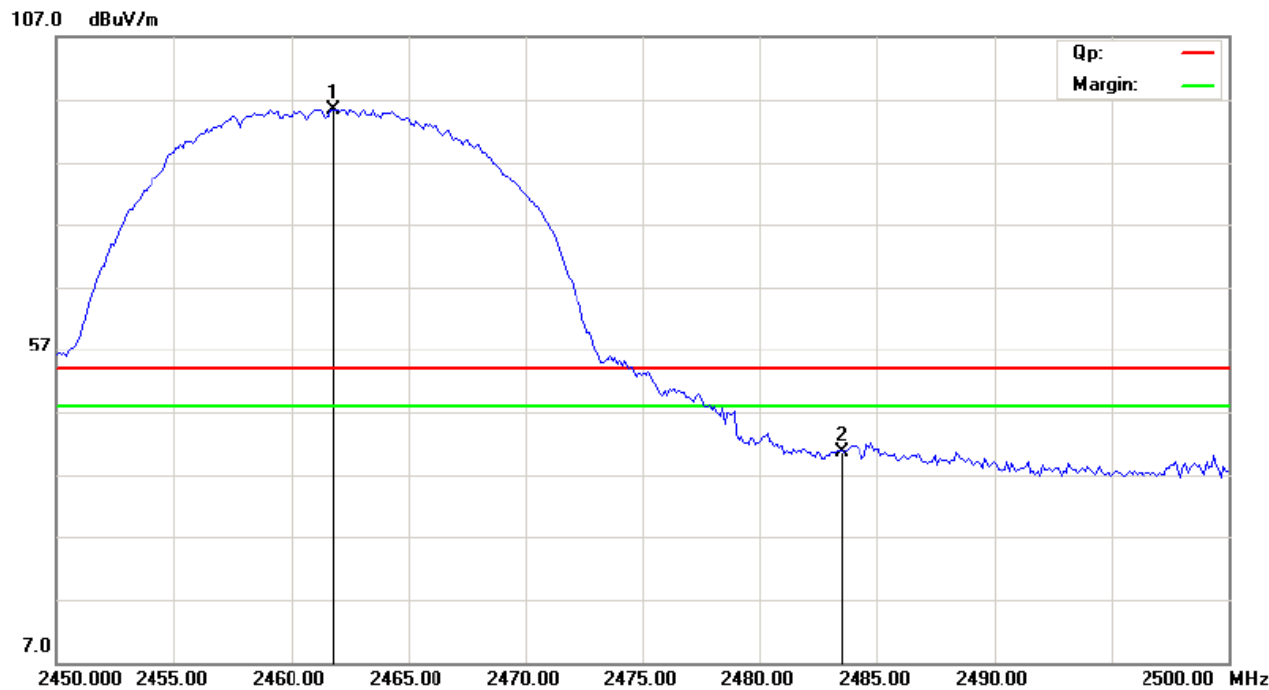


For 802.11b mode  
CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	40.72	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



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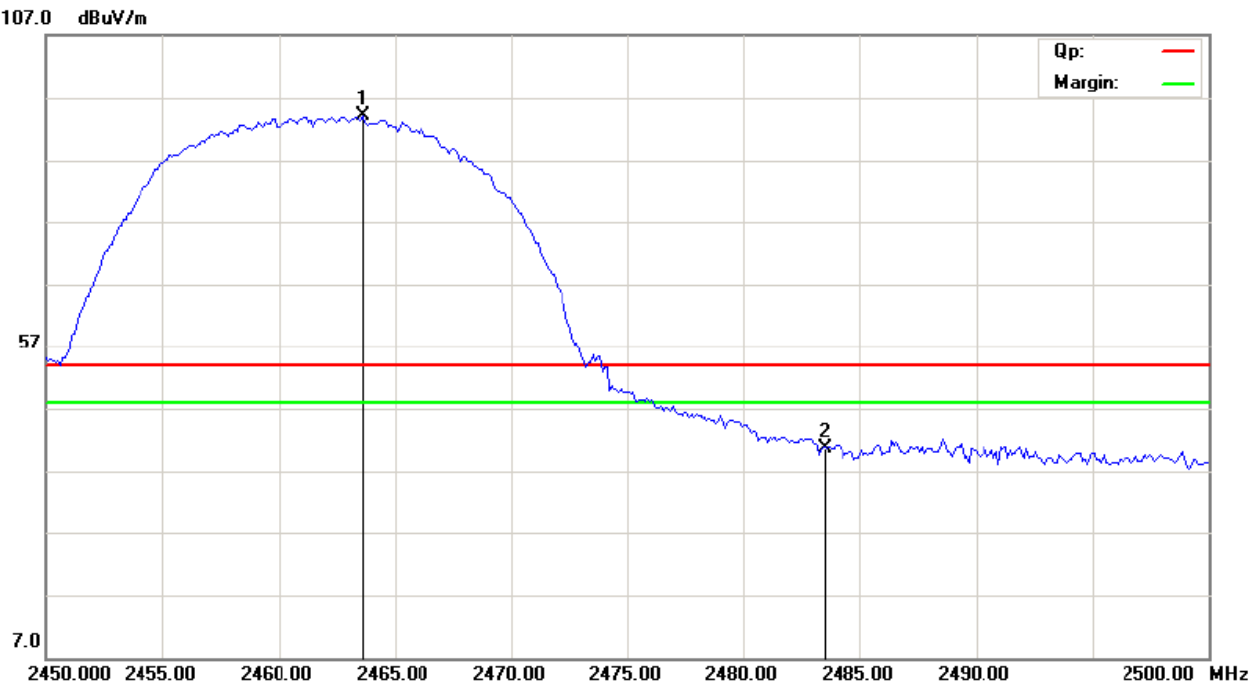


For 802.11b mode  
CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	40.65	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



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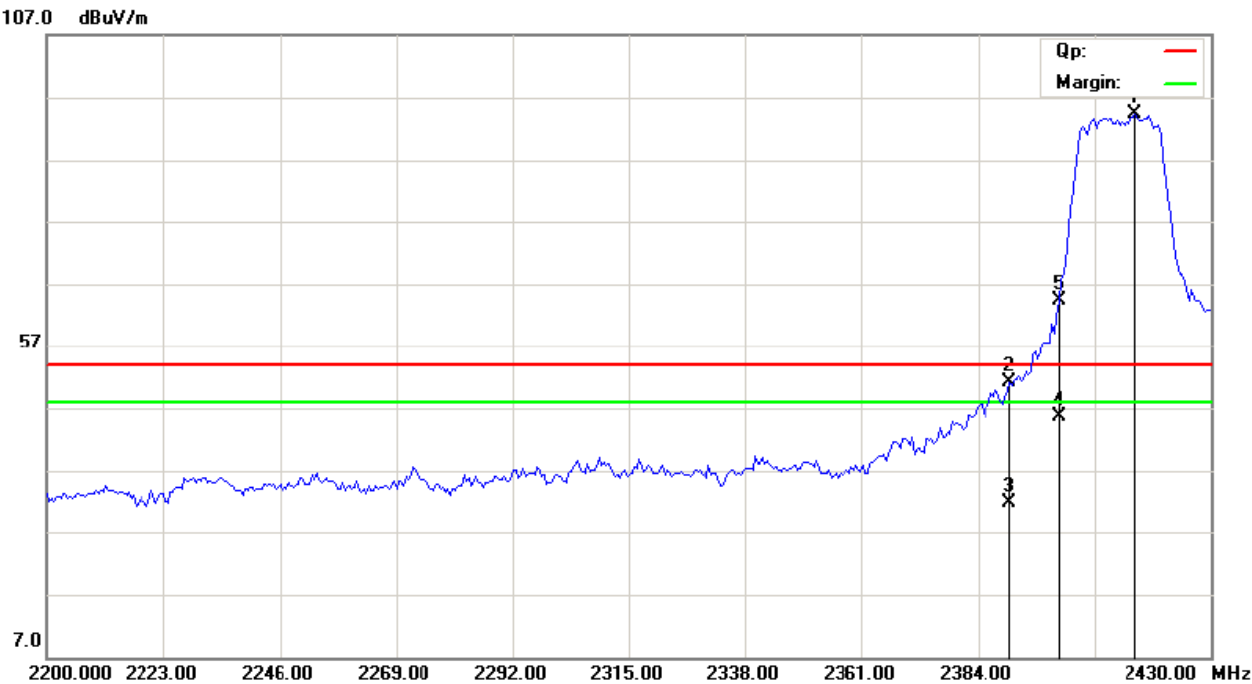


For 802.11g mode  
CH01 at 54Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	51.14	Limit	74(dBμV/m)
	AV (dBμV/m)	31.87		54(dBμV/m)
2400.000	PK (dBμV/m)	64.33	Limit	74(dBμV/m)
	AV (dBμV/m)	45.57		54(dBμV/m)

Test Figure: Horizontal



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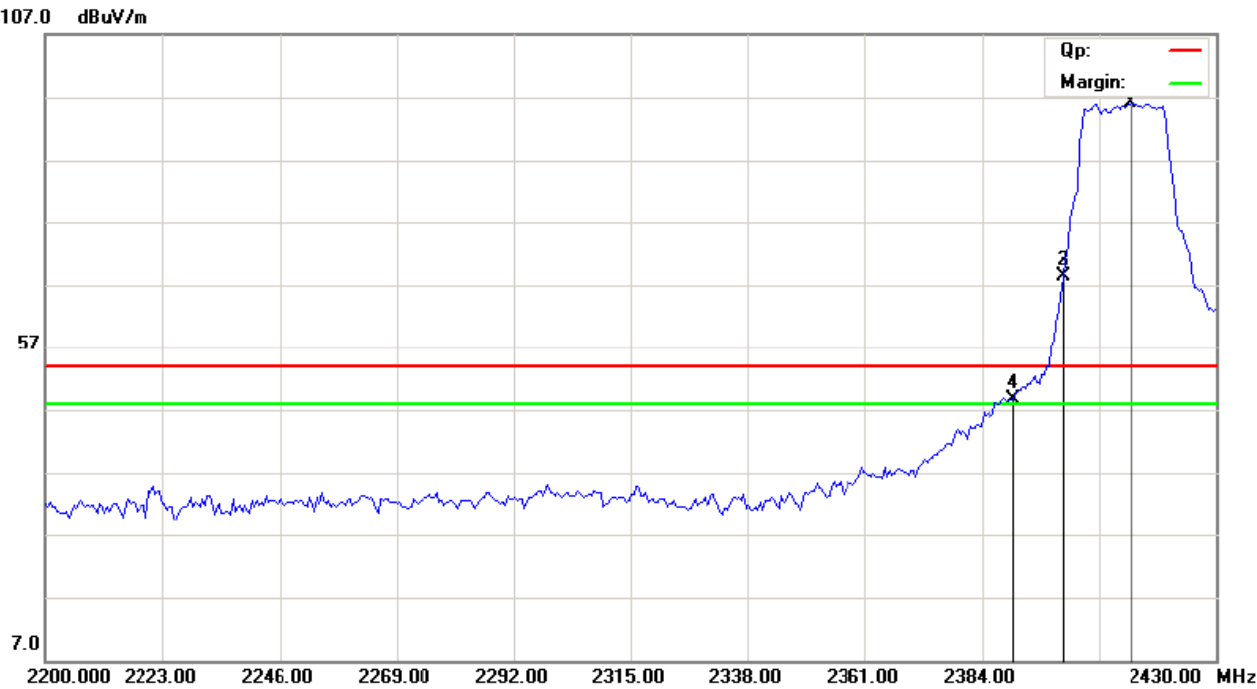


For 802.11g mode  
CH01 at 54Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	48.71	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	68.31	Limit	74(dBμV/m)
	AV (dBμV/m)	50.26		54(dBμV/m)

Test Figure: Vertical



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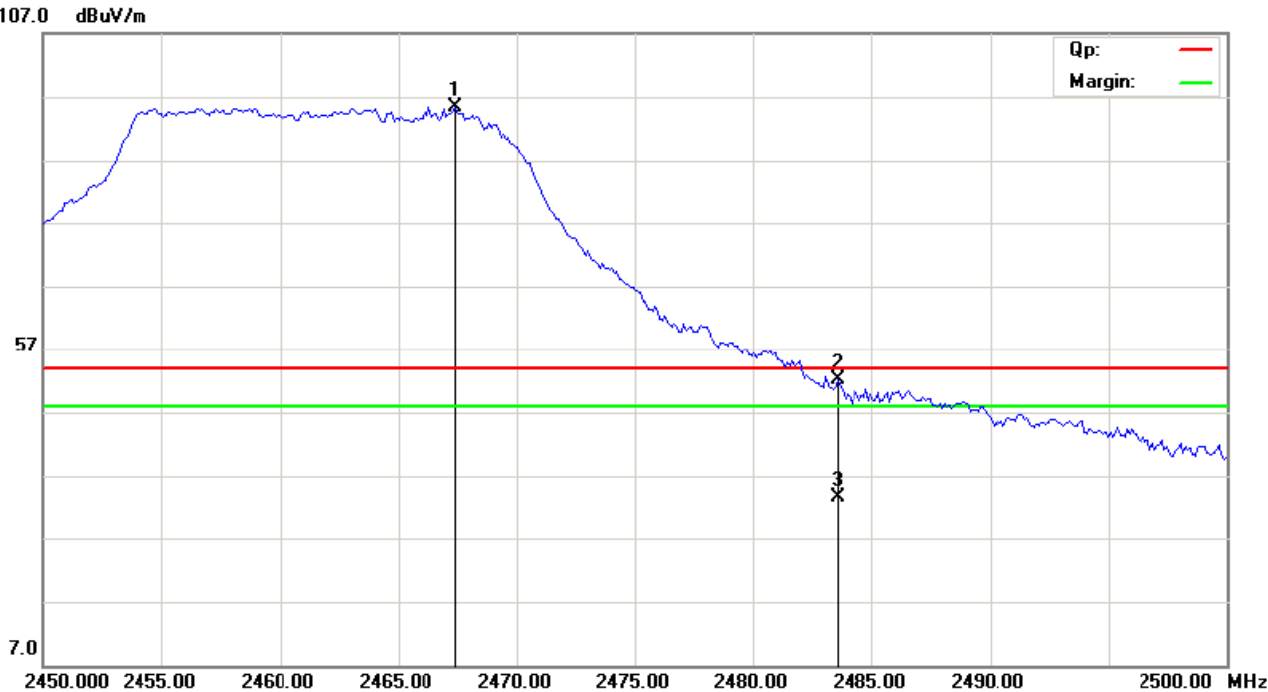


For 802.11g mode  
CH11 at 54Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	52.08	Limit	74(dBμV/m)
	AV (dBμV/m)	33.59		54(dBμV/m)

Test Figure: Vertical



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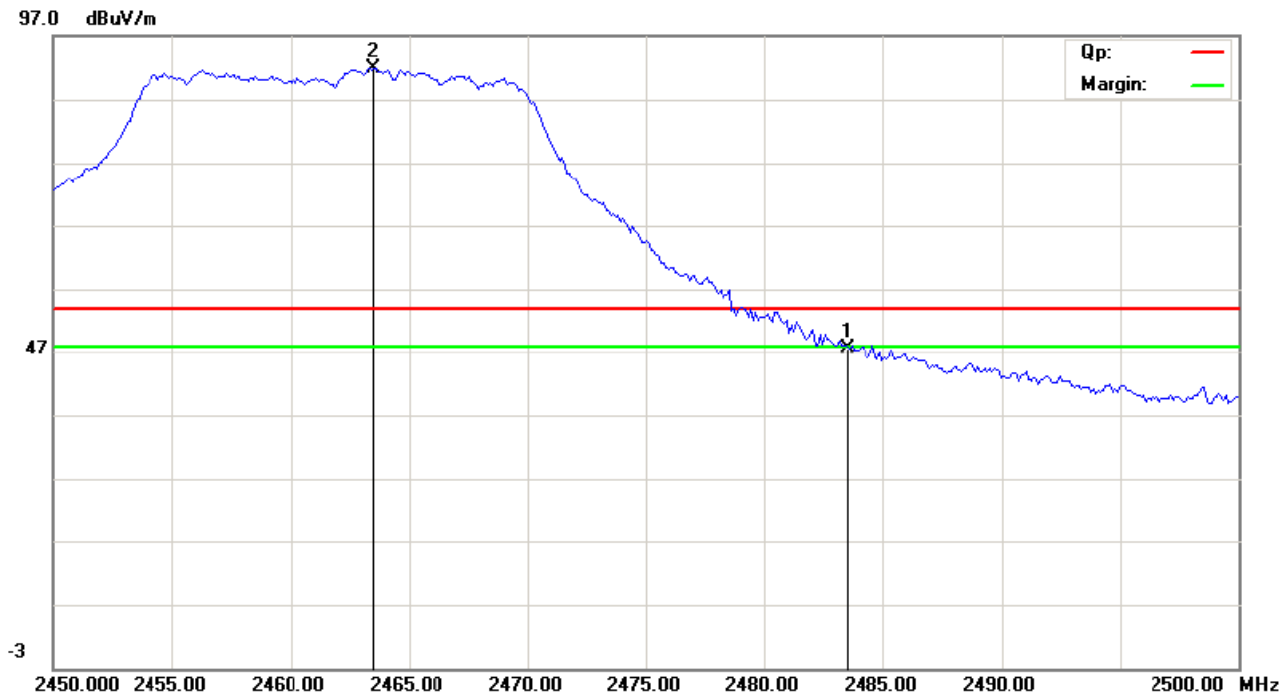


For 802.11g mode  
CH11 at 54Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	47.73	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



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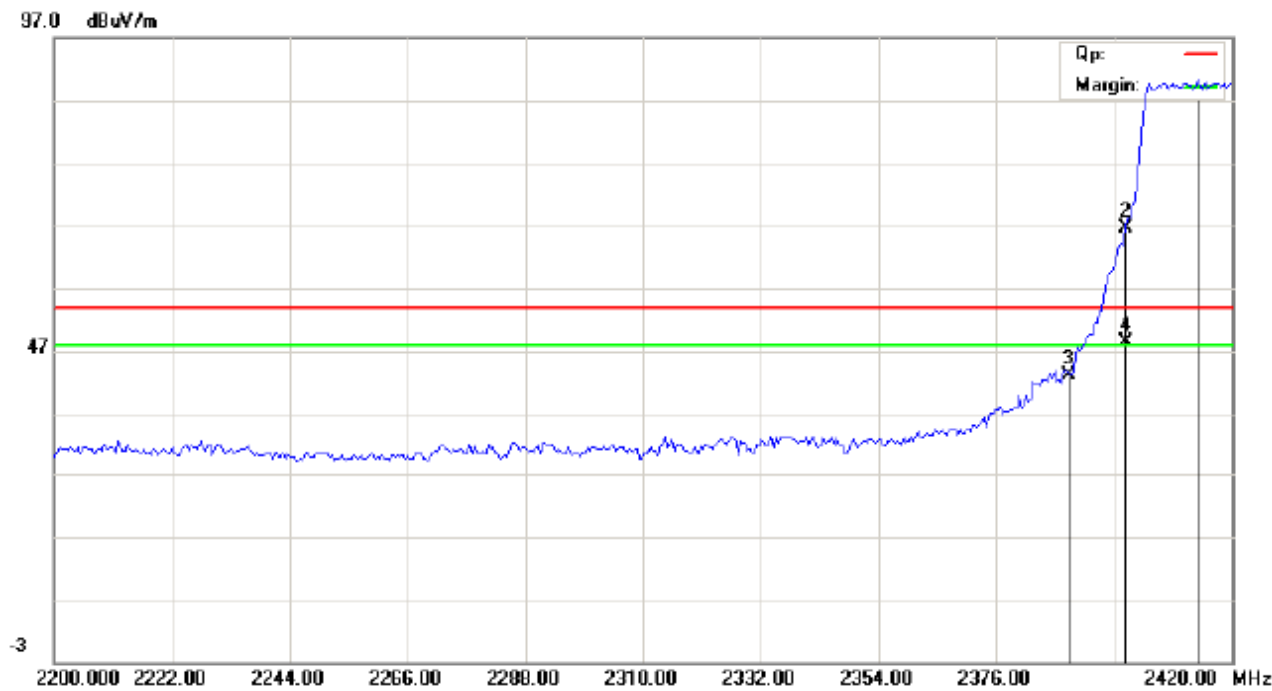
For 802.11n (HT20) mode

CH01 at 6.5Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	43.01	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	66.67	Limit	74(dBμV/m)
	AV (dBμV/m)	48.43		54(dBμV/m)

Test Figure: Horizontal



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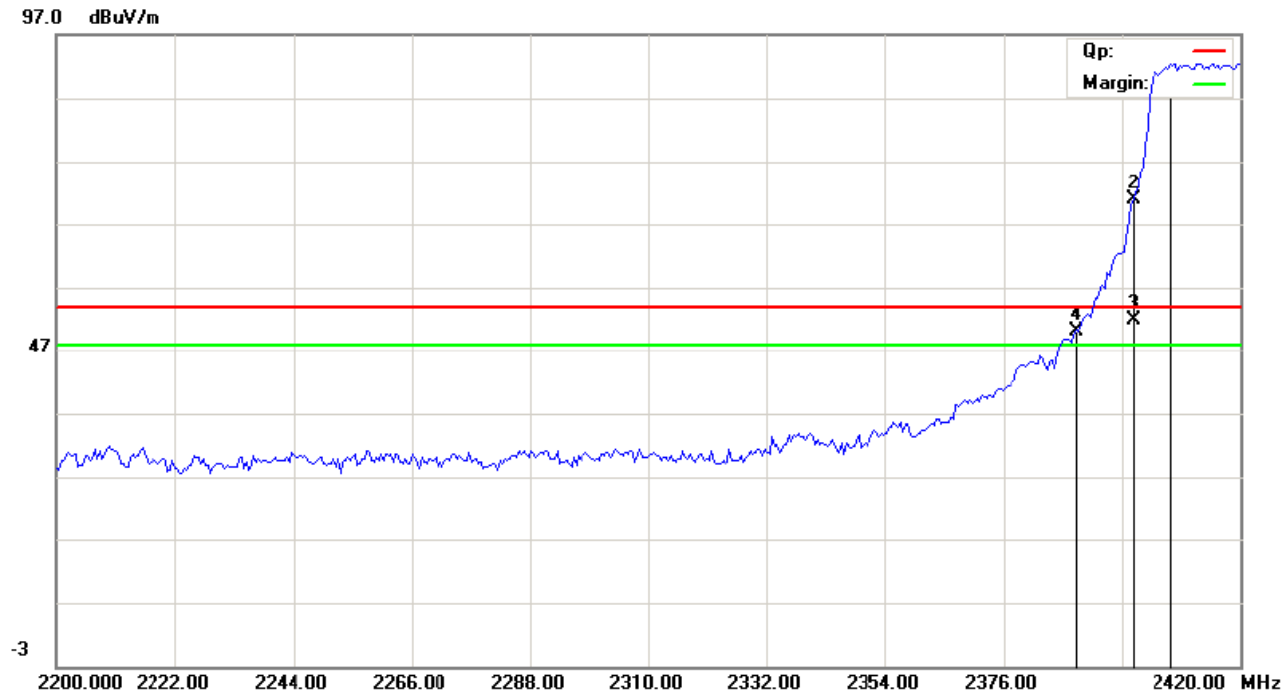


For 802.11n (HT20) mode  
CH01 at 6.5Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	50.05	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	70.83	Limit	74(dBμV/m)
	AV (dBμV/m)	51.86		54(dBμV/m)

Test Figure: Vertical



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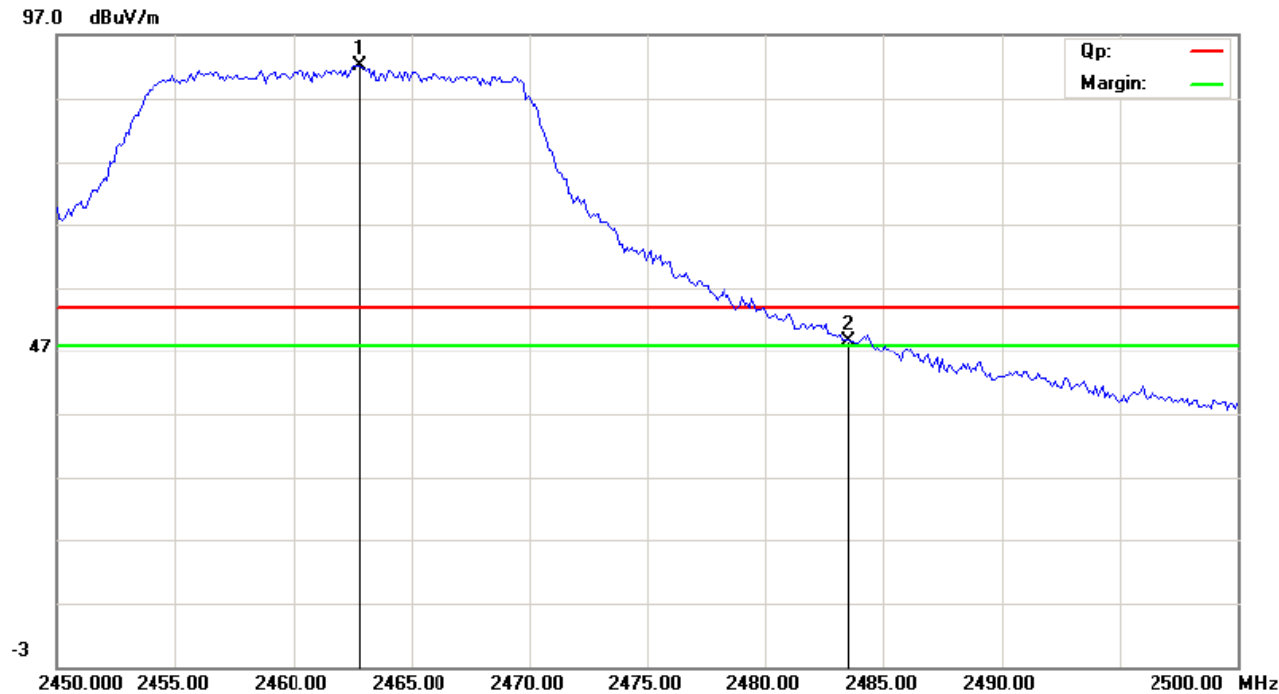


For 802.11n (HT20) mode  
CH11 at 6.5Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	48.59	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



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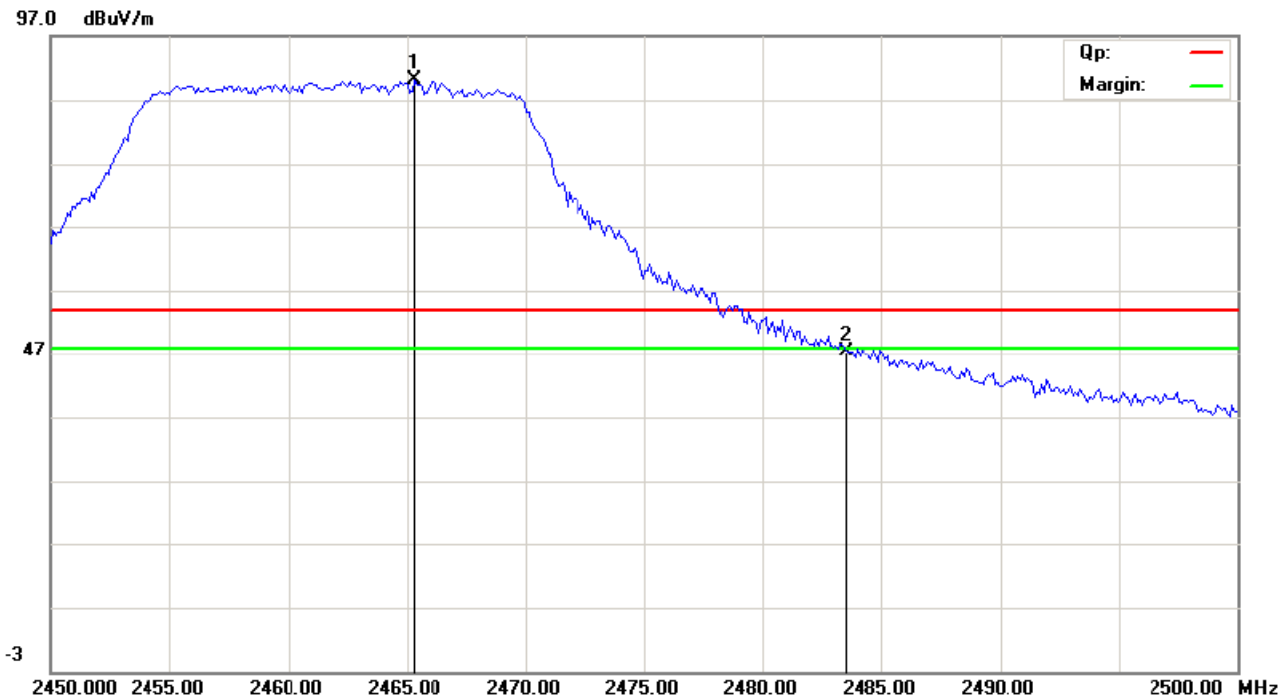


For 802.11n (HT20) mode  
CH11 at 6.5Mbps

10.4 Restricted band Measurement

Product:	IP Camera		Model:	137P
Mode	Keeping Transmitting		Input Voltage	AC 120V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	47.50	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



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## **11.0 Antenna Requirement**

### **11.1 Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **11.2 Antenna Connected construction**

Dipole antenna used. The maximum Gain of the antennas is 2.0dBi.

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## 12.0 Maximum Permissible Exposure

### Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

#### (a) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100000			5	6

#### (b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Times   E   <sup>2</sup> ,   H   <sup>2</sup> or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100000			1.0	30

Note: f=frequency in MHz; \*Plane-wave equivalent power density

### MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = E^2 / 377$$

**E** = Electric Field (V/m)

**P** = Peak RF output Power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

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### Calculated Result and Limit

Antenna Gain (Numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
1.585	21.23	132.74	0.042	1	Compiles

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### 13.0 FCC ID Label

**FCC ID: ZNxEASYN137P**

**This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

#### **Mark Location:**



FCC ID Label Location

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#### 14.0 Photo of testing

Conducted Emission Test Setup:



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Radiated Emission Test Setup:



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## Photographs – EUT

### External Photos



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External Photos



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### Power Supply



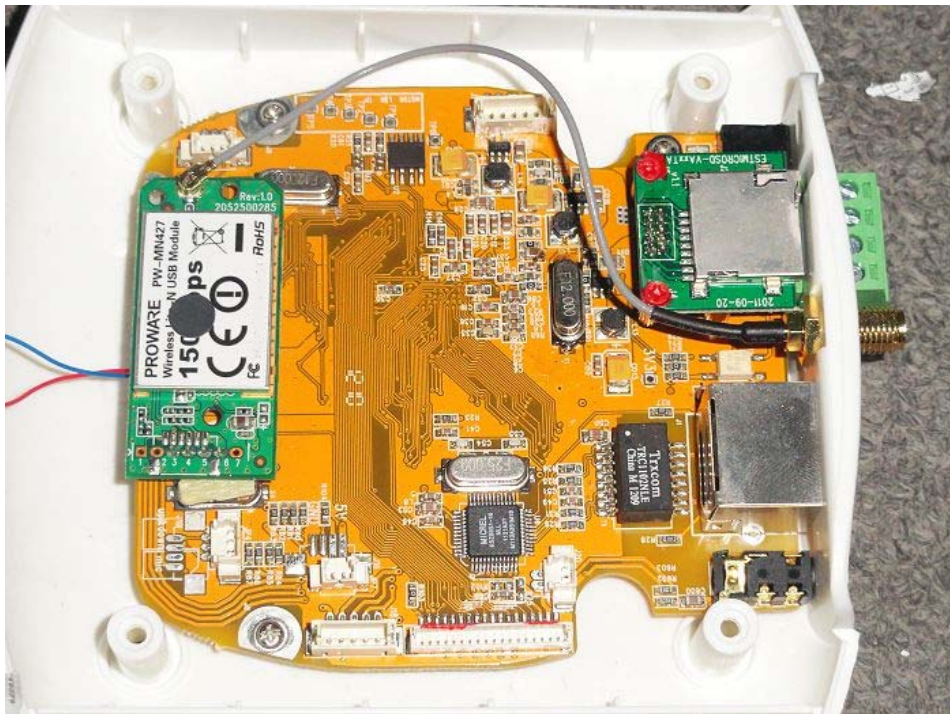
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Internal Photos



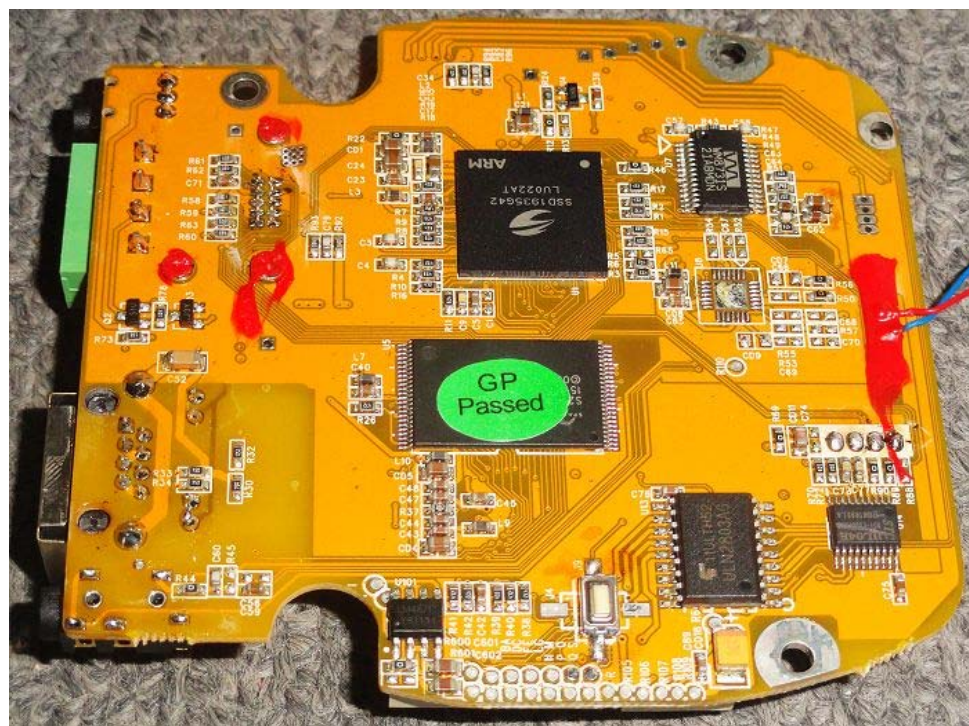
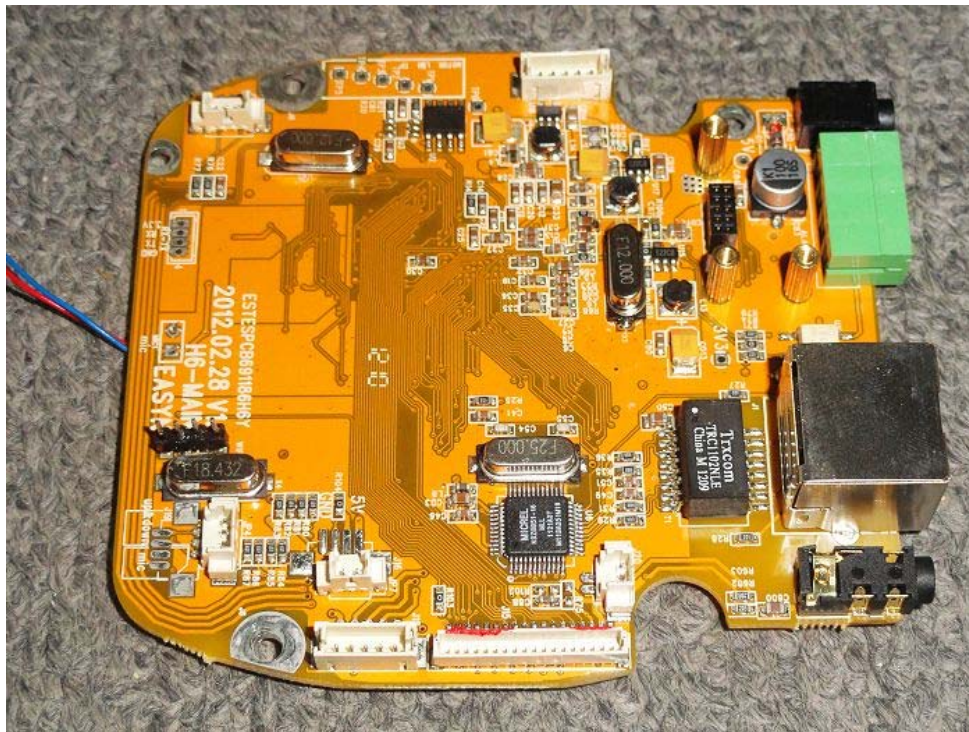
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Internal Photos



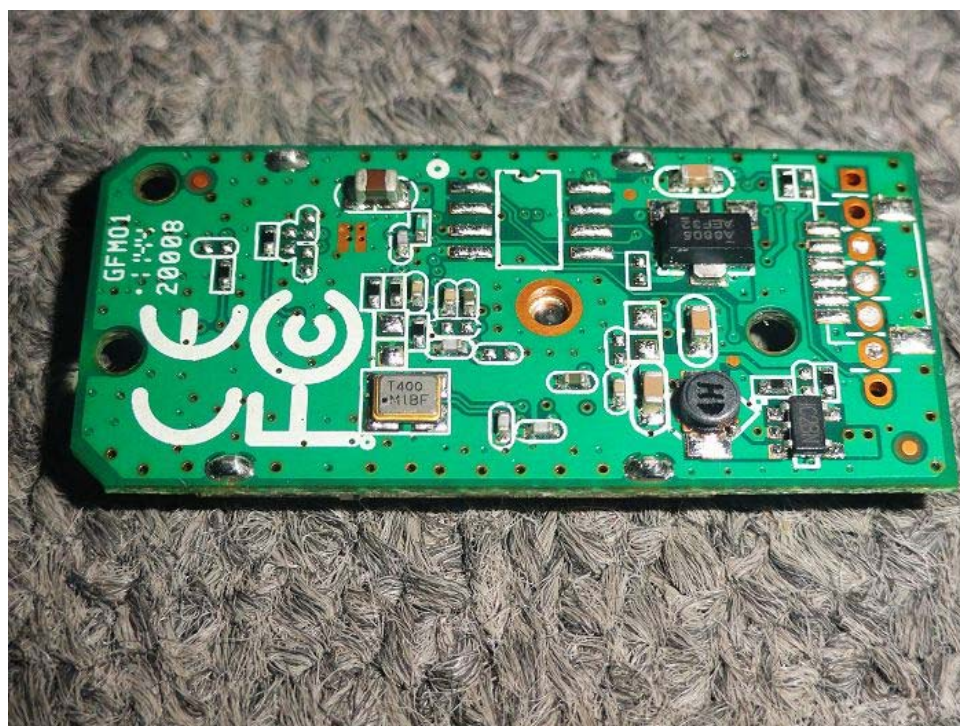
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### Internal Photos



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